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In the 50's, public concern about American education, the influence of Sputnik I, and the National Defense Education Act of 1958 brought about major educational results. In tune with these events and attitudes, the Fund for the Advancement of Education was created in April 1951 for the purpose of experimenting and pioneering in education.

Recruitment and training were concentrated upon to secure more and better teachers. On-the-job training and 5-year college programs were emphasized. Several thousand teachers were drawn into the profession. The fund explored more efficient uses of teachers. Nonprofessionals were used to save teachers' time. Team teaching was fostered. Such technological innovations as television, tape, and teaching machines were sponsored, with television receiving the most attention. The fund undertook pilot studies and demonstrations toward solving the problems of educationally depressed areas, of poverty pockets, of aid to needy students at the college level, and of integration.

Curriculum reform was studied. Special attention was given to the education of the exceptional child. Closer integration of high school and college curriculums was sought, including admission with advanced standing, course updating in science, and study grants to revise college courses. Programs were inaugurated to increase faculty salaries and to solve the management and financing problems of colleges and universities.

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DECADE OF EXPERIMENT

The Fund for the Advancement of Education 1951-61

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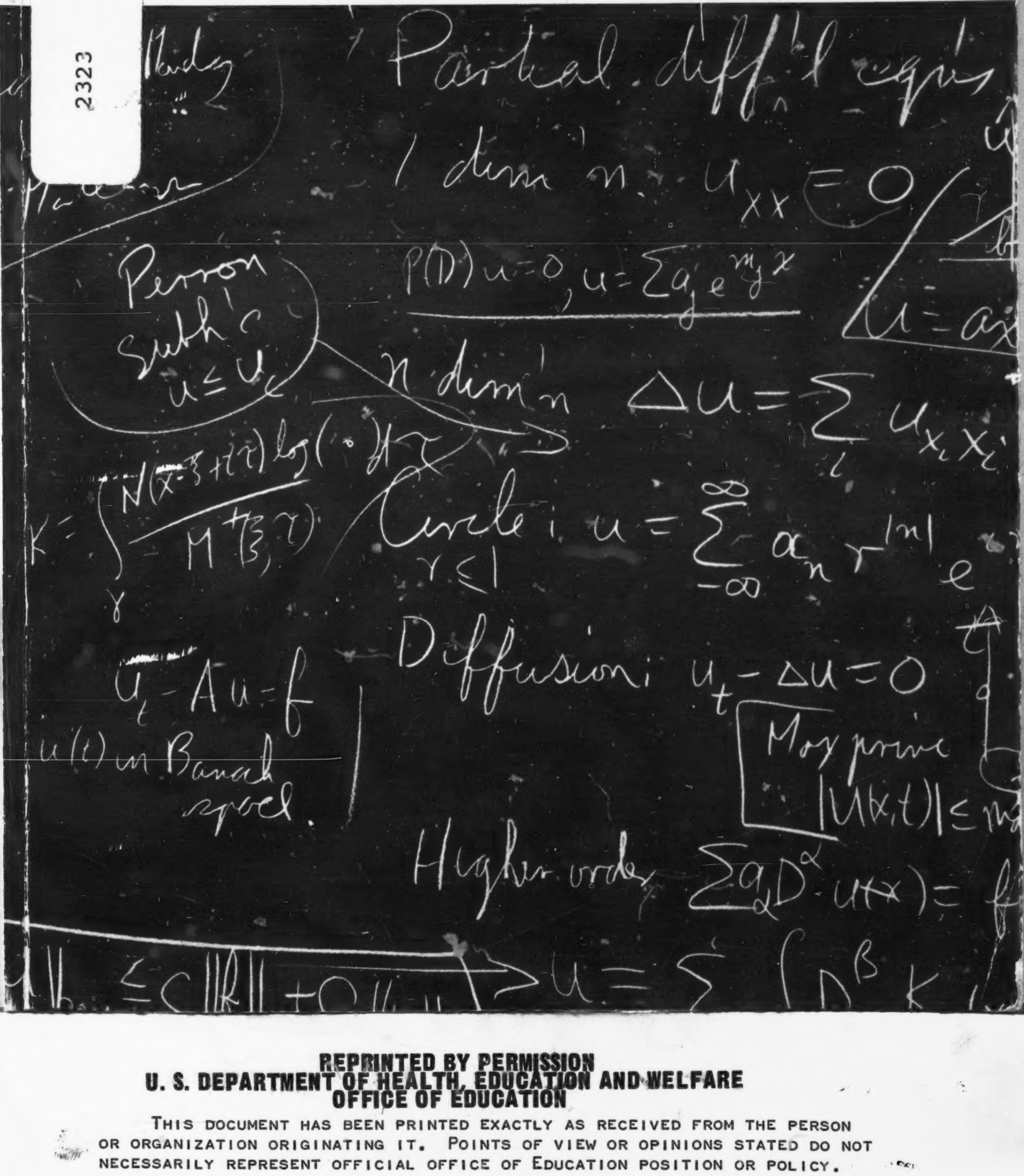
Partial diff'l eq'ns
1 dim'n $u_{xx} = 0$
$P(D)u=0, u=\sum a_j e^{m_j x}$
Perron
Subh'c
$u \le U$
n dim'n $\Delta u = \sum_i u_{x_i x_i}$
$K = \int_\gamma \frac{N(x-\xi+t(\tau)) \log(\cdot) d\tau}{M^+(\xi,\tau)}$
Circle $r \le 1$ $u = \sum_{-\infty}^{\infty} a_n r^{|n|} e$
Diffusion $u_t - \Delta u = 0$
Max princ
$|U(x,t)| \le M$
$u_t - Au = f$
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$u = \sum \int D^\beta K$

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DECADE OF EXPERIMENT

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DECADE OF EXPERIMENT

The Fund for the Advancement of Education

1951-61

The Fund for
the Advancement of Education
ESTABLISHED BY THE FORD FOUNDATION
477 Madison Avenue
New York 22, N. Y.

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Preface

THIS REPORT, *unlike the earlier Fund reports that reviewed activities for a year or two, covers the decade since the establishment of the Fund for the Advancement of Education by the Ford Foundation in 1951. Most, if not all, of its recent work has evolved from earlier fields of interest and decisions formed over a period of time about promising ways to advance education through the support of experimentation and new developments. Thus it seemed that the Fund's activities during the past year or two might be more significant if related to its first decade of operations.*

As the report suggests, the Fifties have been exciting years in American education. There have been grave problems, many still unsolved; there has been sharp controversy, much of it still unresolved, on many questions ranging from the purposes and performance of the schools to the methods of preparing teachers. The past decade, especially since Sputnik, has been a period of extensive experimentation.

The board and the staff of the Fund feel privileged to have been able to work on the problems of American education during these days, which have been filled at the same time with so much that is menacing and so much that is promising. The Fund has been encouraged by the mounting interest in education, by the increasing willingness of schools *and colleges to engage in fruitful experimentation, and by the strong evidence that under the direction of imaginative and energetic educators certain lines of experimentation contribute constructively to the advancement of education. We have experienced many more satisfactions than frustrations during our first ten years.*

We are especially pleased with the success of the experiments and new developments designed to improve the preparation of teachers, and to increase their effectiveness through the provision of teacher aides, the formation of teaching teams, and the use of modern means of communications. We are pleased, too, with the success of the new programs for meeting the needs of superior students and for challenging all students to exert themselves to the limit of their capacities. We have been heartened by signs that, in spite of pressures to meet the nation's critical needs for specialized and skilled manpower in many fields, there is a new appreciation of the central importance of general and liberal education as preparation for the wise execution of the responsibilities of citizens in a democratic society and for the full development of each individual as a person.

CLARENCE H. FAUST

We are entering upon an era which will test to the utmost the capacity of our democracy to cope with the gravest problems of modern times... We are entering upon this difficult and dangerous period with what I believe we must call a growing deficit in the quantity and the quality of American education...We have to make a breakthrough to a radically higher and broader conception of what is needed and of what can be done. Our educational effort today ...is still in approximately the same position as was the military effort of this country before Pearl Harbor.

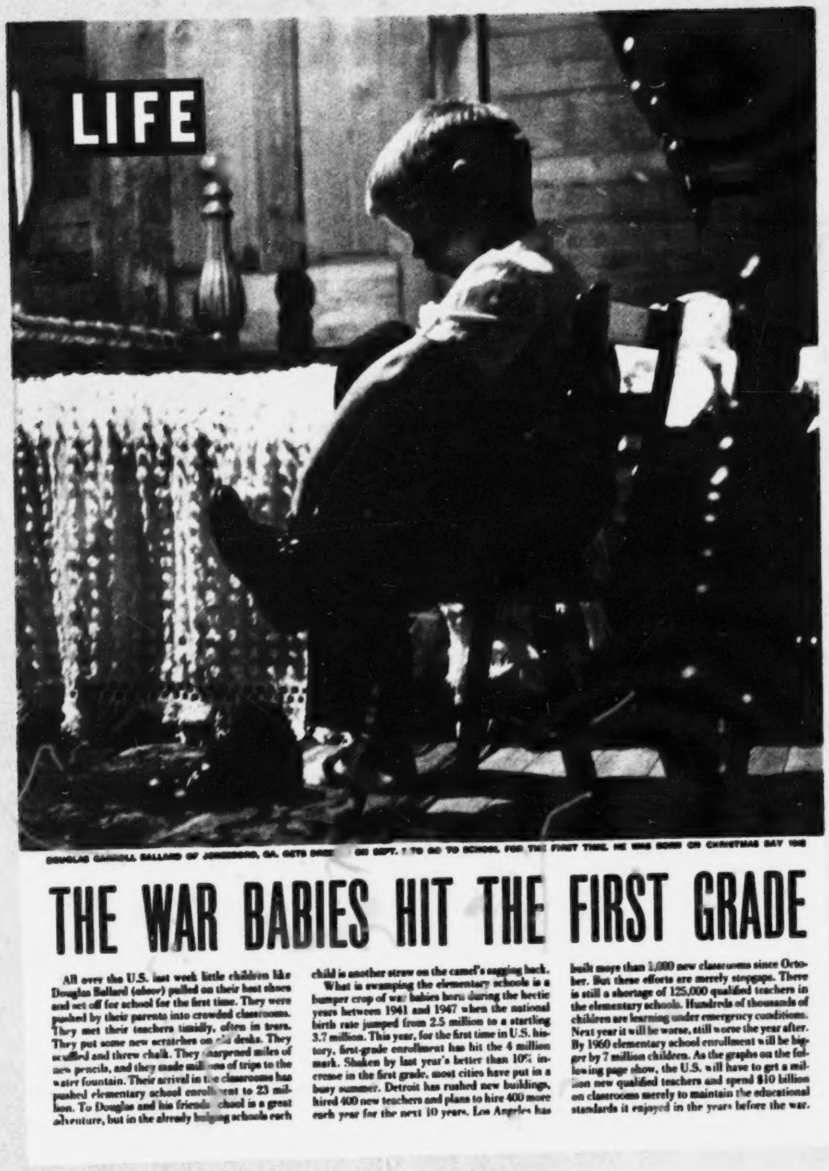
WALTER LIPPMANN (1954)

The Educational Crisis and the Role of the Fund

IN THE MIDDLE of the twentieth century the American educational system — a distinctive feature of our democratic life and one of which we have been traditionally proud—finds itself in crisis. It is endeavoring to overcome its difficulties and at the same time to improve its performance so it will be better able to serve the nation.

Crisis is a strong word, but not too strong for the situation that has existed. In 1950 the educational establishment was reeling under the impact of an unprecedented combination of forces, being put to the test by the simultaneous strains and pressures of the postwar population boom, the explosive increase of knowledge, and the urgent demands for a vast new supply of highly trained manpower.

The population explosion alone would have been a severe burden on the schools. In 1945 demographers of the Census Bureau expected that the population might reach 165 million by the end of the century. The figure was reached, however, not in fifty-five years, but in ten. Elementary-school enrollments accordingly leaped from 20 million in 1945 to 28 million by September, 1955. The schools staggered under the load, and



DOUGLAS CARROLL BALLARD OF JONESBORO, GA. GETS DRESSED ON SEPT. 7 TO GO TO SCHOOL FOR THE FIRST TIME. HE WAS BORN ON CHRISTMAS DAY 1942

THE WAR BABIES HIT THE FIRST GRADE

All over the U.S. last week little children like Douglas Ballard (above) pulled on their best shoes and set off for school for the first time. They were pushed by their parents into crowded classrooms. They met their teachers timidly, often in tears. They put some new scratches on old desks. They scuffed and threw chalk. They sharpened miles of new pencils, and they made millions of trips to the water fountain. Their arrival in the classrooms has pushed elementary school enrollment to 23 million. To Douglas and his friends school is a great adventure, but in the already bulging schools each child is another straw on the camel's sagging back.

What is swamping the elementary schools is a bumper crop of war babies born during the hectic years between 1941 and 1947 when the national birth rate jumped from 2.5 million to a startling 3.7 million. This year, for the first time in U.S. history, first-grade enrollment has hit the 4 million mark. Shaken by last year's better than 10% increase in the first grade, most cities have put in a busy summer. Detroit has rushed new buildings, hired 400 new teachers and plans to hire 400 more each year for the next 10 years. Los Angeles has built more than 1,000 new classrooms since October. But these efforts are merely stopgaps. There is still a shortage of 125,000 qualified teachers in the elementary schools. Hundreds of thousands of children are learning under emergency conditions. Next year it will be worse, still worse the year after. By 1960 elementary school enrollment will be bigger by 7 million children. As the graphs on the following page show, the U.S. will have to get a million new qualified teachers and spend $10 billion on classrooms merely to maintain the educational standards it enjoyed in the years before the war.

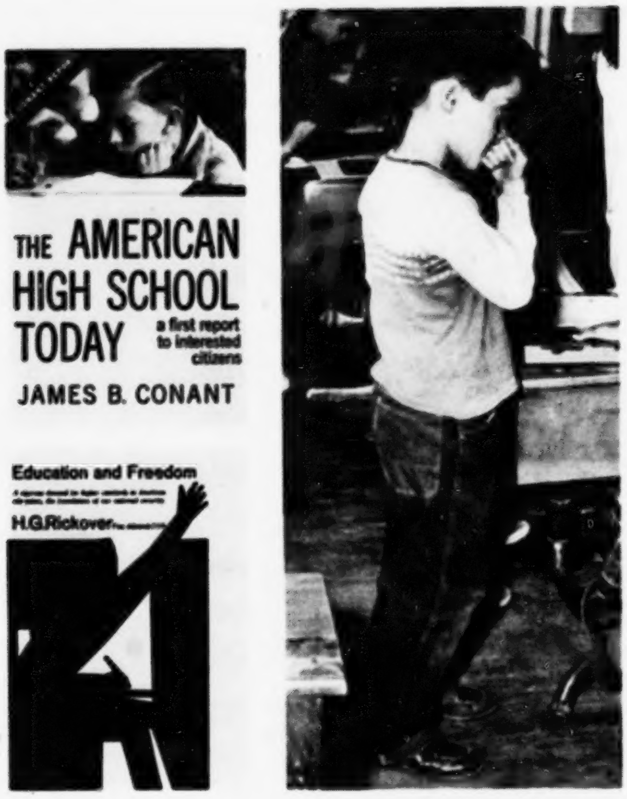
high schools and colleges waited apprehensively for the avalanche to reach them in a few more years.

To make matters still more difficult, American society was rapidly trying to achieve the ideal of universal secondary education. At the turn of the century, only 11 per cent of the young people were going to high school as against 90 per cent today; and only 4 per cent of America's young people were going to college—today 40 per cent do so. The ultimate effects of this change are all but incalculable, but a short visit to almost any campus reveals the immediate effects in the form of overcrowded classrooms, mushrooming new buildings, and a constant stream of visiting high-school seniors wearing worried looks, revealing their intense desire to be accepted, and their fear that there will be no room for them.

At all educational levels, indeed, the swelling enrollments produced the same physical problems: too few chairs per classroom, too few rooms per building, too few buildings per school, and too few supplies of all sorts. Although taxpayers groaned and protested, these were deficits in *quantity* that money could make up in fairly short order. But money could not make up the growing threat to the *quality* of instruction, the major cause of which was a severe and increasing shortage of able teachers. The growing student bodies of our schools would, in themselves, have made for such a shortage, but it was greatly worsened by the fact that teacher salaries had failed to keep pace with industrial pay scales. Some of the most able teachers left the schools; many students who might have thought of teaching as a career excluded it from their plans. The result was not merely undersupply, but a threat to the quality of education.

Quality suffered, furthermore, from the very extension of secondary education. The American people encouraged this spread of an ideal without stopping to formulate the purpose of secondary education, or systematically attacking the problems inherent in simultaneously educating the bright and the dull, the scholarly and the worldly, the artistic and the Philistine, the native-born and the immigrant. In consequence, by midcentury the typical high school was a hodgepodge of disparate persons and programs, and its curriculum was a potpourri of college preparation, vocational training, and adjustment-to-life. It had been thrown together in the effort to satisfy everyone; not surprisingly, it satisfied very few.

The educational system has never been without its critics, but in the

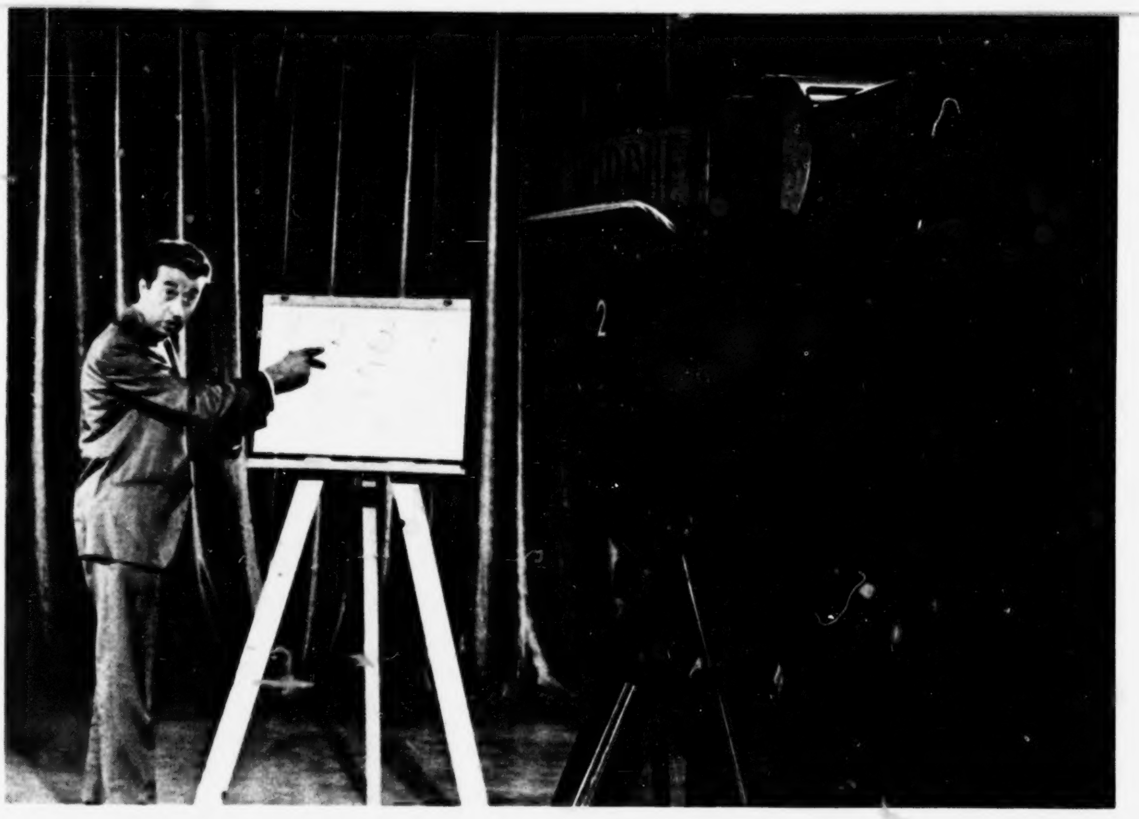

THE AMERICAN HIGH SCHOOL TODAY
a first report to interested citizens
JAMES B. CONANT
Education and Freedom
H.G.Rickover

The Fifties brought increased concern about educational quality, interest in new ways to achieve excellence.

crisis of the 1950's the schools came under particularly heavy fire from all quarters and for a variety of reasons, some bad, some irrelevant, some good but inconsistent. Many of the arguments, however, clustered about a familiar old issue. For some years past, a controversy about teaching techniques and goals had been going on in professional circles; on the one side were scholars and intellectuals, who clung to traditional concepts of education, and on the other were professional educators who favored the informal activity-centered programs known, somewhat imprecisely, as "progressive education." (There was some crossing of party lines, of course, in both directions.)

The deepening educational crisis of the postwar years fanned this smoldering dispute of the specialists into a blaze that excited and alarmed the public. A torrent of books and articles angrily charged quackery in education, protested that Johnny couldn't read, and complained about the failure of the schools to equip youth for higher studies, for responsible jobs, or even for writing a grammatical letter. Among the new critics of the schools were generals and admirals, tradesmen, politicians, scientists, and industrialists; each had his own notions as to the proper purposes of schooling; each had his own notions of what was wrong and what to do about it.

Unfortunately, alarm and criticism do not of themselves ensure constructive change, nor do they even necessarily indicate with clarity the



directions change might take. But a foundation with no vested part in factional disputes, no necessity to fear or yield to public pressures, and no integral connection with any part of the school system, might be able to encourage new thinking, underwrite experiments and demonstrations, and support pilot programs that were too uncertain of success or too controversial to be paid for by public tax money or private endowment funds. It could, in short, assist and stimulate existing institutions to test many a promising avenue of change. This was the purpose for which the Fund for the Advancement of Education was created in April, 1951.

With the settlement of the estates of Henry and Edsel Ford, the Ford Foundation had only recently become a major national philanthropy, with education as one of its five broad areas of interest. To locate useful new activities within education, the Foundation created the small, separate, specialized Fund for the Advancement of Education. It was assigned the task of investigating and giving initial support to those ideas, experiments, and demonstrations that seemed to offer at least partial solutions to problems plaguing American schools and colleges. The Fund has confined itself to short-term pilot-plant efforts, using its relatively limited resources as risk capital (it has made grants totaling some $50 million in its first decade).

The Fund carries out its franchise with a small staff of ten principal officers and a number of assistants, consultants, and clerical help.* In effect, however, the Fund's manpower is immense, since it draws upon a vast national pool of experience and ingenuity—the teaching and administrative staffs of the nation's 40,000 public-school systems and 2,000 colleges. The Fund encourages these people to submit proposals in almost any form from a luncheon chat to a detailed formal prospectus. Its staff members visit schools, meet and talk to teachers and school officials, and receive from them hundreds of suggestions and proposals, to which the staff adds some project suggestions of its own. All in all, the Fund has supported some 500 projects thus far; a number of these have worked out well enough to have been granted enlarged support by the Ford Foundation.

Because the Fund for the Advancement of Education is a pioneering and experimental agency, it has excluded from its activities projects, however worthy, that belong within regular institutional budgets, making no grants, for example, for building programs or general operating expenses. The Fund has used its resources not to sustain the sure thing, but to try out those new, relatively untested things – television teaching, nonprofessional teacher aides, "fifth-year" teacher training for liberal-arts graduates, team teaching, and others – that hold some promise of helping the distressed educational system meet the manifest needs of modern society more effectively.

Yet a private foundation of this size cannot expect either to create or to halt large trends in education. It would have been futile, for instance, to invest grant money in the more efficient utilization of teachers in the Thirties, when there were more teachers than jobs, and little reason for citizen support of such efforts. Such a foundation can, however, select areas of contingency and, with good timing, make its small efforts have large effects. It tries to study the power structure of the educational system, gauge the temper of the times, appraise the array of forces for and against any particular change, and then throw its weight at the right moment behind the most promising trends in the hope of converting them into dominant ones.

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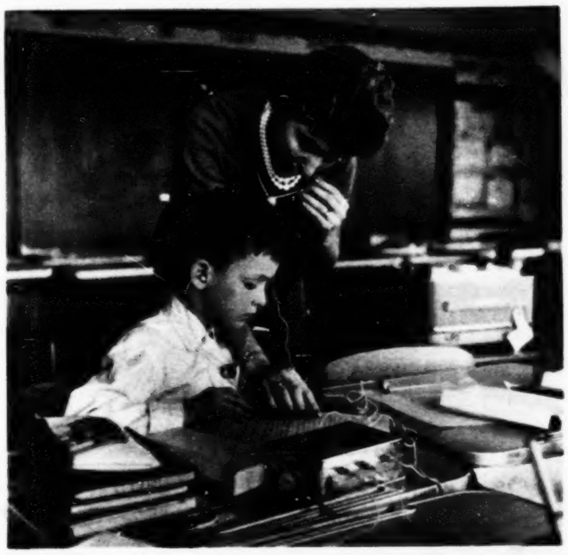
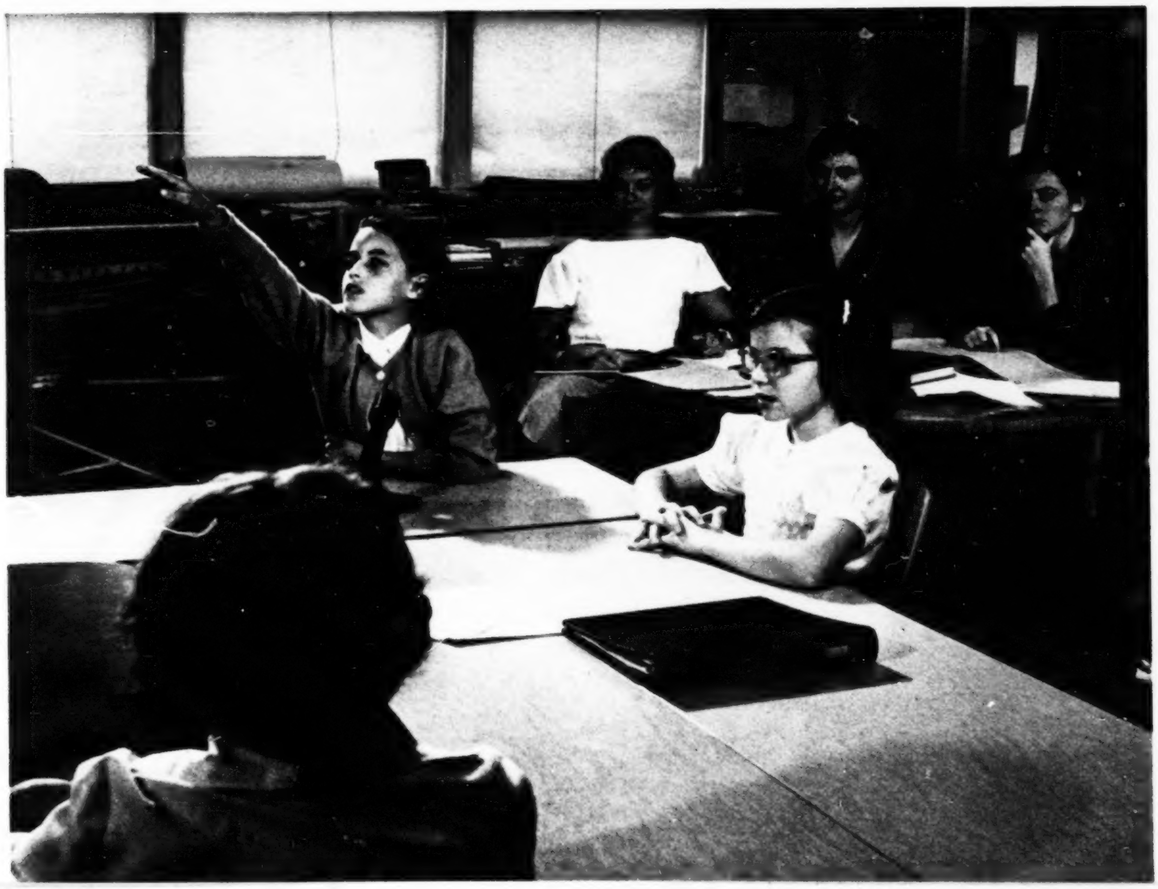
*The officers and staff of the Fund were entirely separate from those of the Ford Foundation until 1957; since then, although the Fund retains its own board of directors, and remains legally and operationally distinct, its personnel acts also as the staff of the Ford Foundation's Education Program.

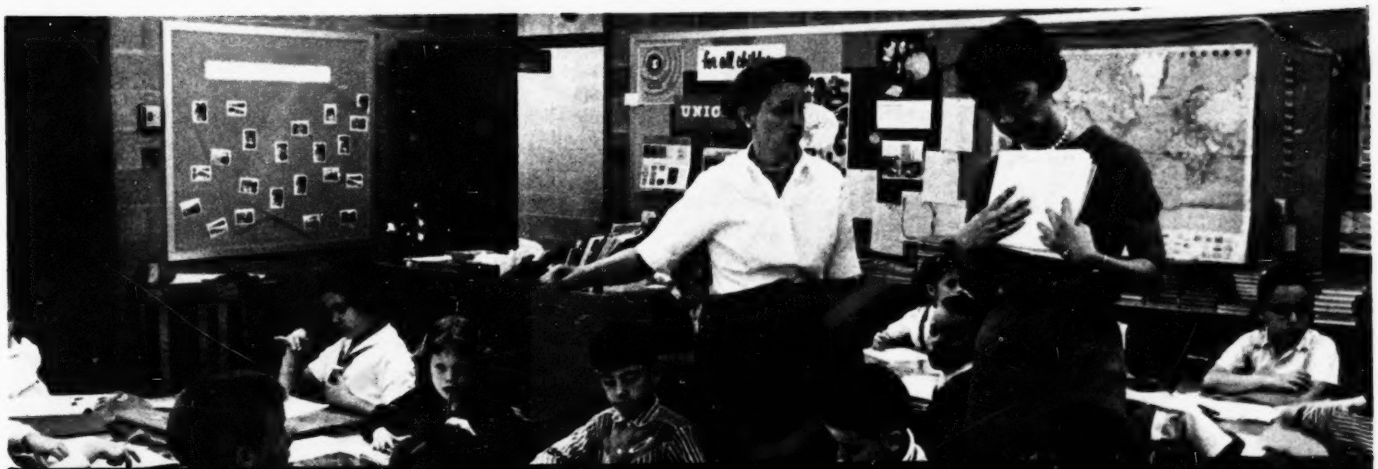
Schools, hard pressed by the shortage of able teachers and by new demands for improved education, experiment with new ways to recruit and train teachers and to use technology.





MAJOR PROGRAM GRANTS (1951-1960)

(in Millions of Dollars)



TEACHER EDUCATION: 23.5

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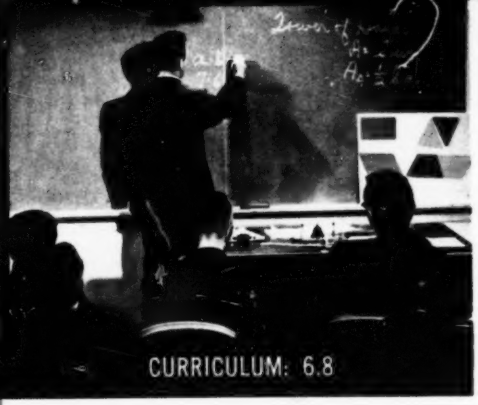

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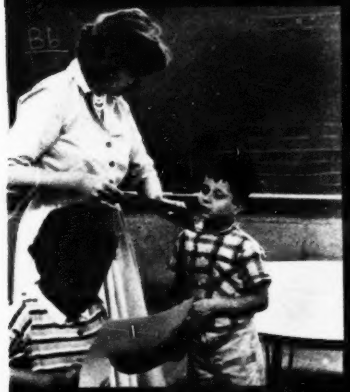


EQUALIZATION: 2.1

FINANCE: 1.6

For this reason, as well as to avoid scattering its funds too thinly to achieve results, the Fund has so far given its attention to five major areas of American education: *1)* the recruitment and training of teachers, *2)* the better use of teachers' time and talent, *3)* extension to all of full educational opportunity commensurate with ability, *4)* improvements in curriculums, and *5)* improvements in school management and financing.

Of these, the first has received about half of the money granted by the Fund in its first decade of operation, because of the conviction that attracting and keeping gifted teachers is one of the most basic of all the problems facing education. Second to this interest is the Fund's concern with the more efficient use of teachers' time and energy. The underlying aim of these so-called "utilization" programs has not been to replace teachers, but to multiply their effectiveness by new techniques and devices. Television, for instance, has been given thorough demonstration not as an embellishment or teacher substitute, but simply as an effective medium of communication, capable of bringing the best teachers into direct contact with a greatly increasing number of students. The remaining three areas of interest have received less of the Fund's attention quantitatively, but not qualitatively.

In striving to advance American education through these ventures, the staff of the Fund has evolved its concept of "advancement" from a number of fundamental convictions. Some of these – such as the belief that everyone should have an equal opportunity to as full an education as he can benefit by—are generally accepted, but others are controversial and may long continue to be so. One such is the Fund's conviction that a liberal education is the first essential in the education of every American, and particularly of every teacher. Another is that it is in no way undemocratic to seek out and nurture superior talent and that, in fact, the democratic way of life is bound to suffer if this is not done. A third is that American schools, if they are to produce any significant number of intellectually superior human beings, must re-establish the priority of the intellect. While the Fund has no ideological commitment to any *means* of educational advancement, it does have a commitment to these basic *ends* of education. Although these ends are subject to debate at present, the Fund hopes that in future decades they will become the core of a public philosophy of education to which a majority of Americans will subscribe.

To implement this hope for a growing public consensus on educational goals, the Fund has also supported certain projects designed to help clarify the question of what kinds of schools America needs, what they should do, and what the facts are in the important issues in education. Among such projects have been conferences and workshops, grants to colleges for self-studies, fellowships for educational reporting, and publications dealing with a wide variety of specific educational problems. The Fund helped launch Mortimer Adler's Institute for Philosophical Research, which undertook an analytic re-examination of Western humanistic thought, a project of considerable interest to those concerned with the goals of liberal education. It also supported the National Citizens Commission for the Public Schools (later the National Citizens Council for Better Schools), which activated several thousand citizen groups and was instrumental in distributing many thousands of pamphlets on the critical issues facing the schools, with practical suggestions on how to meet them. To create a new avenue for informing the public about educational matters, the Fund last year co-operated in the sponsorship of a monthly supplement in the *Saturday Review*, entitled *Education in America*.

The Fifties, the Fund's first decade of existence, saw grave new problems arise within education, adding to the crisis and the existing problems.

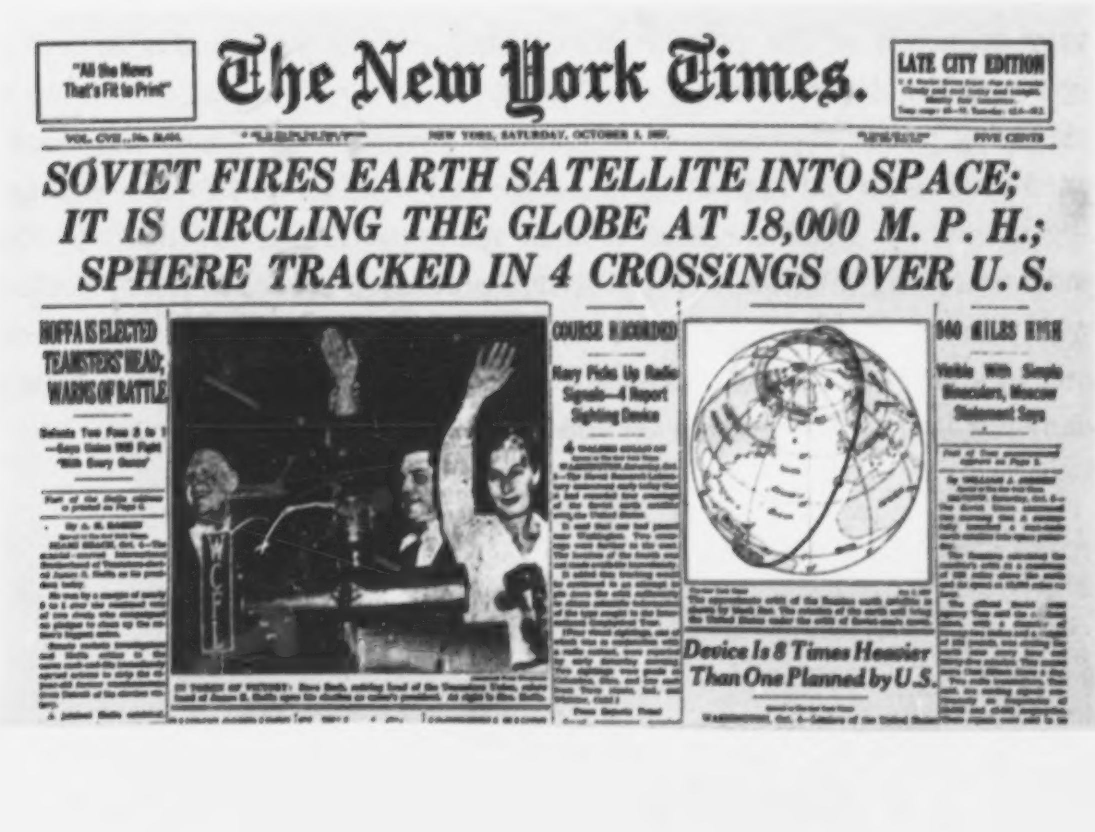
Better utilization of college teaching resources
A report by
SCHOOLS FOR TOMORROW
THEY WENT TO COLLEGE EARLY
ESTABLISHED BY THE FORD FOUNDATION
THE FUND FOR THE ADVANCEMENT OF EDUCATION
Memo to a College Trustee

Experimental approaches to the advancement of education were reported widely in the Fifties. On the left, a selection of Fund and Fund-supported publications reflects a variety of such approaches.

They did not, unfortunately, witness the radical breakthrough that Walter Lippmann called for in 1954. However, some of the elements of the crisis were partially solved, particularly the quantitative ones. Many people and institutions have been responsible for discovering and developing these partial solutions—the Fund, other foundations, the federal government, the schools and colleges themselves, the communications media, industry, and citizens in general.

Probably the most important development of the period was the growth of broad public concern that has led to a searching self-examination about the goals and achievements, the strengths and weaknesses, of American education. Until recently, public interest in schools was confined largely to logistics — the costs and numbers of school buildings, bond issues, and budgets. But many forces were at work to direct public interest to questions of quality and content, to change apathy or anger into constructive concern, and to generate a climate of opinion favorable to major changes and advancement. When this mood would have been converted into action by its own momentum no one can say; in 1957, however, the Russians launched Sputnik I and so gave the public and the government an emphatic push into action.

Major results came quickly, the most dramatic of them being the National Defense Education Act of 1958, which authorized the expenditure of $887 million in federal funds over a four-year period "to ensure trained



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The New York Times.

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SOVIET FIRES EARTH SATELLITE INTO SPACE; IT IS CIRCLING THE GLOBE AT 18,000 M. P. H.; SPHERE TRACKED IN 4 CROSSINGS OVER U. S.

HOFFA IS ELECTED TEAMSTERS' HEAD; WARNS OF BATTLE

COURSE RECORDED

Navy Picks Up Radio Signals—4 Report Sighting Device

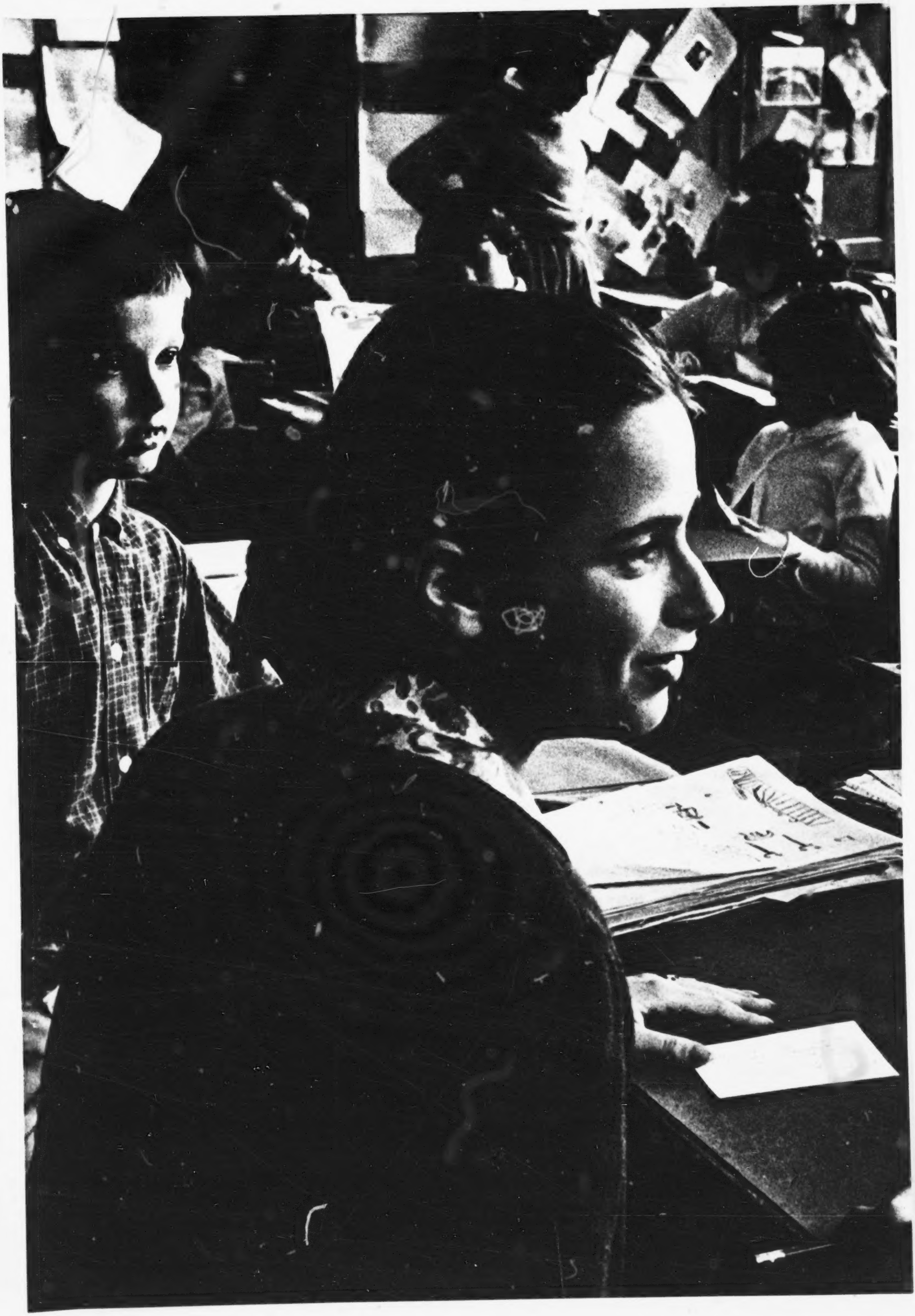
560 MILES HIGH

Visible With Simple Binoculars, Moscow Statement Says

Device Is 8 Times Heavier Than One Planned by U.S.

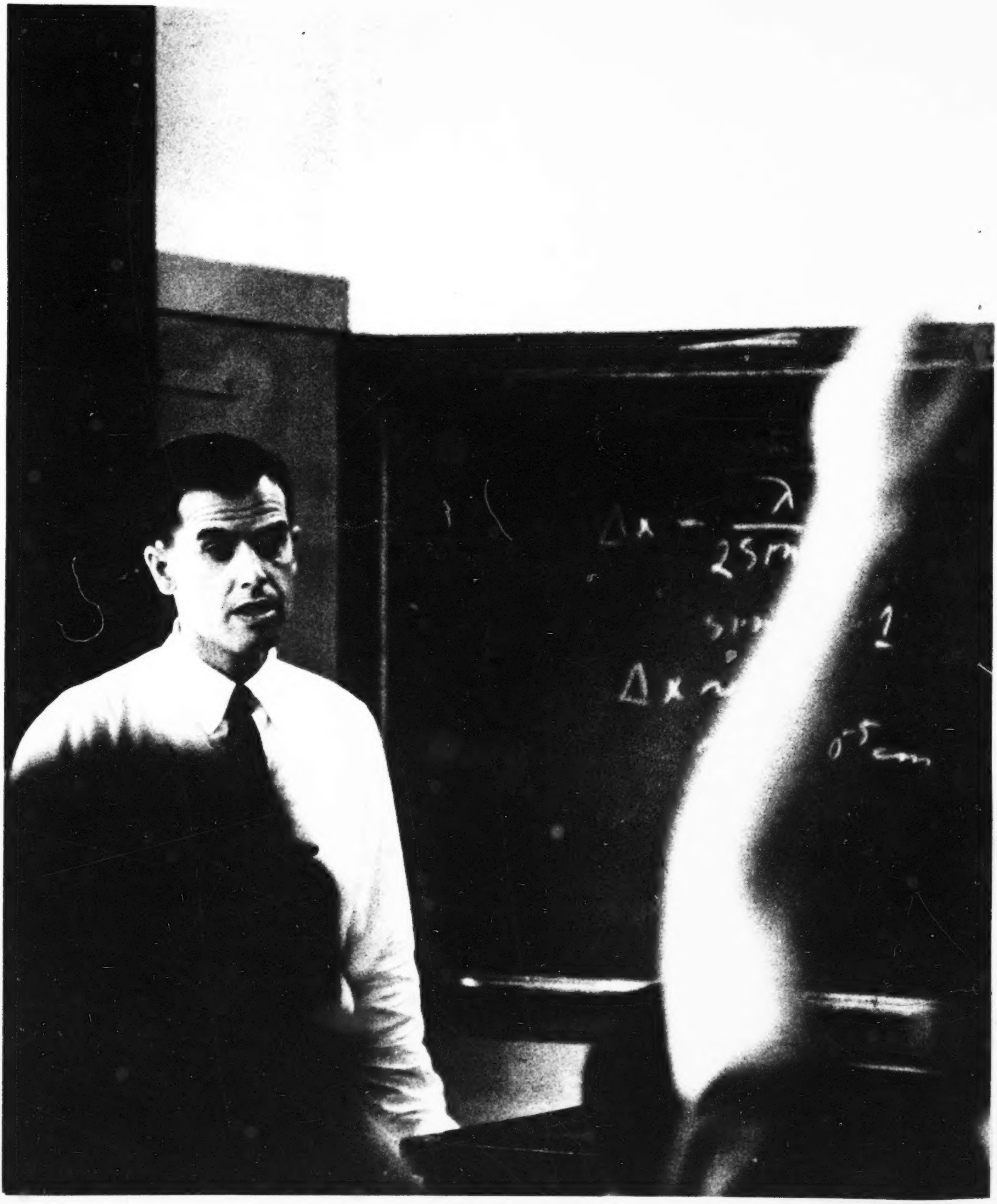
manpower of sufficient quality and quantity to meet the national defense needs of the United States." There has been an extraordinary outpouring recently of important studies; most of them, to be sure, had been started before Sputnik I, but, being published after it, they received far more serious and sympathetic scrutiny than might otherwise have been the case. Among them were the Conant reports on secondary schools, the Rockefeller Brothers Fund report on America's educational future, John W. Gardner's report on education for President Eisenhower's Commission on National Goals, and the recommendations of President Kennedy's task force on education.

As all these works attest, vast problems still confront the American educational establishment in the Sixties, but the past decade has brought some progress. The public is showing a greater willingness to pay not only for more schools, but for higher-quality education. Teachers' salaries, while still inadequate, have risen considerably in the last ten years. Many schools have brought their curriculums up to date and strengthened them, especially in mathematics and the physical sciences. Greater attention is now being paid to the gifted student and more effort is being made to get the ablest students to college. Finally, there is a new recognition that to achieve educational excellence we must make full, daring, and imaginative use of all our resources—time, buildings, and people, as well as money. The very acuteness of the postwar educational crisis has opened unexpected opportunities for reforms of curriculums and methods, made possible a clarifying public discussion of educational purposes and goals, and weakened the entrenched opposition to change and experiment. In this encouraging milieu, the Fund has tried to seize the opportunities presented by the most promising solutions to the problems producing the crisis. It has worked with persons who have sought new roads to the advancement of education and to a new synthesis of methods and goals capable of meeting the urgent demands America is making on education in this revolutionary age.



More and Better Teachers

A number of projects reveal new ways to ease the teacher shortage and raise the quality of instruction—by drawing on unused human resources and building new incentives into the profession.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More and Better Teachers

ASIDE FROM its pupils, the most important part of any educational system is its teachers. When they are too few in number, and substandard in ability, the system is in a desperate state. Such was the situation at midcentury: given the rapidly expanding population, the heightened endeavors to send every child to high-school and a great many of them to college, and the competition of employers for talented college-educated men and women, it had to follow that the situation would become grave, if not disastrous.

When the Fund came into existence in 1951, not only was the educational system in immediate need of thousands of teachers, but all predictions of enrollments indicated that the schools would need half a million more teachers by 1965 and the colleges 300,000 by 1970–a rate of expansion without precedent. Nothing gave any reason to be sanguine about the chances of getting them. By 1955, it was estimated that if one-half of all young people graduating from college in the next ten years went into schoolteaching, the shortage would be met, but in recent years only one-fifth of all college graduates have entered teaching. Most of them, moreover, were women, whose life plans as teachers had undergone abrupt change in one generation: they would drop out of the schools in a few years to raise their own families, and many would not return to work for years, if ever.

How could the rapidly increasing number of students be educated—and better educated—by an instructional force whose relative numerical position was getting worse and worse? The basic and obvious answer was, clearly, a redoubled effort to recruit more new teachers, and to train them to be better ones. There were many varied and divergent opinions as to how to accomplish this, but the Fund sought to support those frequently bold and unconventional suggestions that seemed to offer the best hope for important long-term results.

Recruitment and training, it became evident, are not separate entities, but two interacting aspects of a single problem. Many of the brightest and most able college students, for instance, were rejecting teaching as a career not only because of low salaries and diminishing status, but because conventional teacher-training programs were heavily weighted with courses in professional education, the content of which was frequently incapable of interesting them or capturing their imaginations. For this reason, the Fund has supported a large number of projects designed to help reduce the emphasis on professional courses and increase the emphasis on liberal education, on supervised teaching, and on the subjects to be taught.

The Fund's early efforts consisted of projects centered in twenty-four colleges and universities, from which they reached out to forty-three other institutions, plus many more school systems.* Although there was considerable variation in the details, most of the programs were efforts to tap that large reservoir of unused teaching talent—the liberal-arts graduates who had not taken undergraduate courses in education.

Without such courses, these people could not enter teaching because of prevailing teacher-certification laws. The general pattern of training that led to certification for secondary-school teaching in most of the United States had come to be a four-year program, the first two years of which

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*These early projects are described in greater detail in *New Directions in Teacher Education* (1957) by Paul Woodring, former professor of psychology at Western Washington College of Education, Bellingham, Washington. Mr. Woodring is a staff member of the Fund, currently on loan as editor of the *Saturday Review*'s education supplement.

were devoted largely to general and liberal-arts education, and the last two to subject specialization, professional education courses, and practice teaching. The tendency of teacher-training institutions to emphasize professional education courses was reflected in rigid state certification requirements. Many of the better liberal-arts colleges were unwilling to increase the time devoted to such courses, and consequently turned out fewer and fewer teachers. The barriers erected by professional educators and the certifying agencies became increasingly costly and difficult for liberal-arts graduates to surmount, and still more so for mature men and women who, years after graduation, might wish to enter teaching. This was especially unfortunate in view of the fact that a large pool of potential teachers consists of middle-aged college women whose children are old enough to be in school during much of the day, and whose family duties are rapidly dwindling.

Fifth-year programs

For these reasons, the great majority of Fund grants for teacher training have gone to explore "fifth-year programs," in which post-graduate training prepares college graduates who did not major in education.* The underlying assumption–hardly a radical one–was that bright candidates, after spending sixteen years in elementary, secondary, and college classrooms, have inevitably absorbed a good deal of knowledge about classroom management and techniques of teaching, and that with this backlog of experience, a high level of professional skill could be rapidly reached through special courses, seminars, classroom experience, and discussions. The term fifth-year program need not denote a conventional academic year, but may mean concentrated postgraduate training, ranging from six weeks during the summer to two full graduate years, either full time or part time, and leading either to a graduate degree or only to a teaching certificate.

The earliest Fund activity along these lines began in 1951 as a modest grant (later renewed and enlarged) to the University of Arkansas to assist

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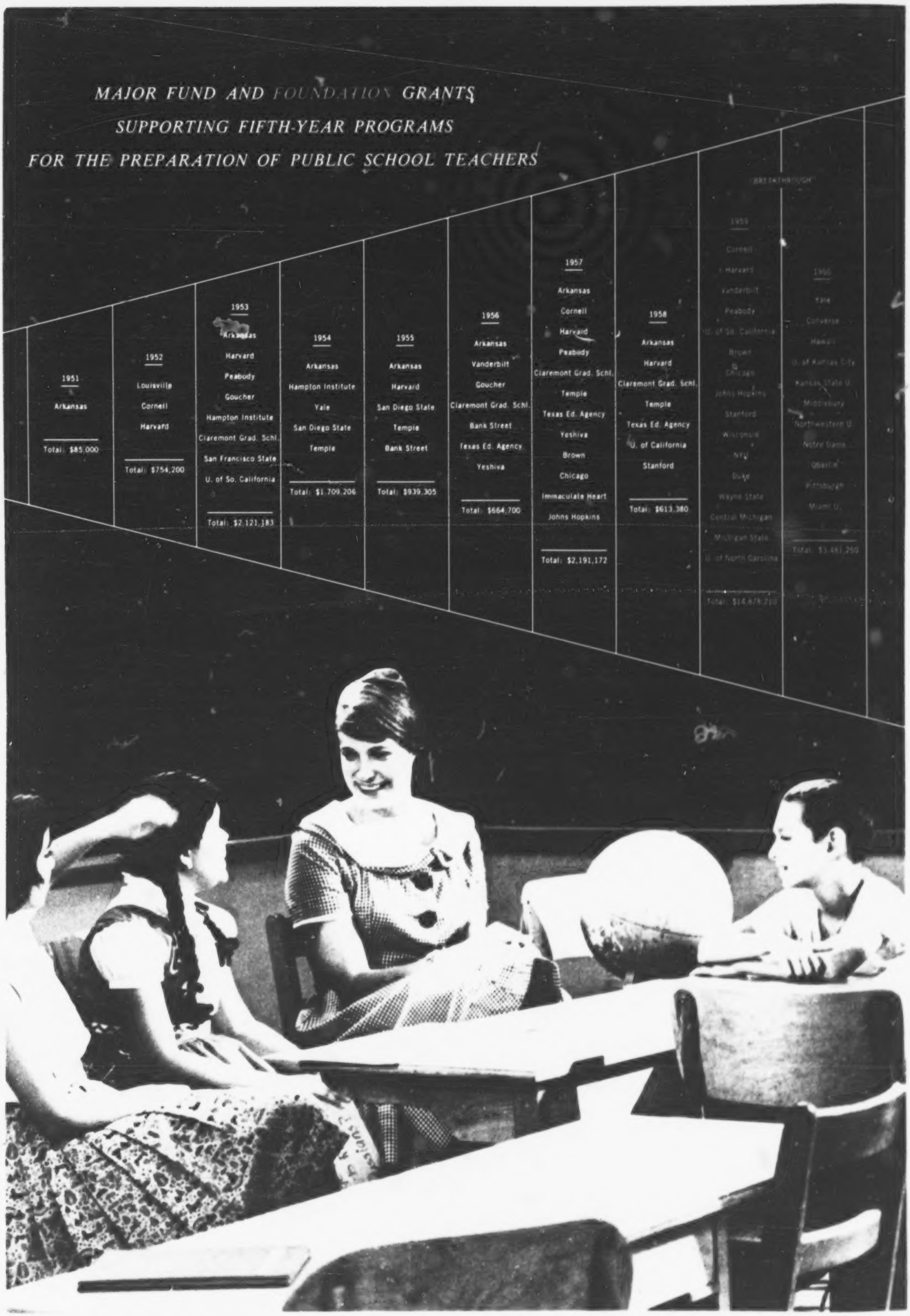
*A few programs were also backed which tested the hypothesis that a sound liberal-arts education plus adequate professional training, including practice teaching, can be combined in a four-year undergraduate program. Such programs were carried on at Barnard, Swarthmore, Carleton, and Wilson colleges.



MAJOR FUND AND FOUNDATION GRANTS SUPPORTING FIFTH-YEAR PROGRAMS FOR THE PREPARATION OF PUBLIC SCHOOL TEACHERS

								"BREAKTHROUGH"	
1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Arkansas	Louisville	Arkansas	Arkansas	Arkansas	Arkansas	Arkansas	Arkansas	Cornell	Yale
	Cornell	Harvard	Hampton Institute	Harvard	Vanderbilt	Cornell	Harvard	Harvard	Converse
	Harvard	Peabody	Yale	San Diego State	Goucher	Harvard	Claremont Grad. Schl.	Vanderbilt	Hawaii
		Goucher	San Diego State	Temple	Claremont Grad. Schl.	Peabody	Temple	Peabody	U. of Kansas City
		Hampton Institute	Temple	Bank Street	Bank Street	Claremont Grad. Schl.	Texas Ed. Agency	U. of So. California	Kansas State U.
		Claremont Grad. Schl.			Texas Ed. Agency	Temple	U. of California	Brown	Middlebury
		San Francisco State			Yeshiva	Texas Ed. Agency	Stanford	Chicago	Northwestern U.
		U. of So. California				Yeshiva		Johns Hopkins	Notre Dame
						Brown		Stanford	Oberlin
						Chicago		Wisconsin	Pittsburgh
						Immaculate Heart		NYU	Miami U.
						Johns Hopkins		Duke	
								Wayne State	
								Central Michigan	
								Michigan State	
								U. of North Carolina	
Total: $85,000	Total: $754,200	Total: $2,121,183	Total: $1,709,206	Total: $939,305	Total: $664,700	Total: $2,191,172	Total: $613,380	Total: $14,678,710	Total: $3,461,250

in planning a state-wide experiment in the university and fourteen colleges. This project strengthened the liberal-arts and general-education courses in the four-year colleges that trained teachers. The graduates of the experimental programs then qualified for certification by taking a fifth year, either at the University of Arkansas or Arkansas State Teachers College, consisting of a teaching internship and professional study. The Arkansas experiment became one of the Fund's most widely publicized efforts, receiving a great deal of hostile comment from professional educators, approval from many scholars, and some of both from the public. Of the total of some $3 million granted to Arkansas, about one-fifth supported the fifth-year program, with most of the rest going to support the state's curriculum improvements in the undergraduate colleges that served as "feeder" institutions.

Being a large-scale statewide effort, and a striking departure from conventional teacher-training programs, the experiment was highly visible and produced a series of secondary effects elsewhere. It provoked widespread public discussion of teacher-training programs; it stimulated colleges in all parts of the country to re-examine their own programs; and most important, it provided a model and demonstration for dozens of similar experiments, also supported by Fund grants. In all, more than half of the early Fund programs were patterned after the Arkansas experiment, although they incorporated many modifications and improvements derived from experience. The Fund encouraged this variety of approaches in the belief that there is not necessarily any one "best way" of training teachers.

A few of these fifth-year programs will serve to illustrate this diversity of approach and emphasis. Cornell University tried preparing college graduates for elementary teaching through a single year's internship in a nearby school, plus seminars on professional problems and the writing of a thesis. Temple University, putting even greater stress on direct classroom experience, sent teaching candidates straight into fully responsible, but

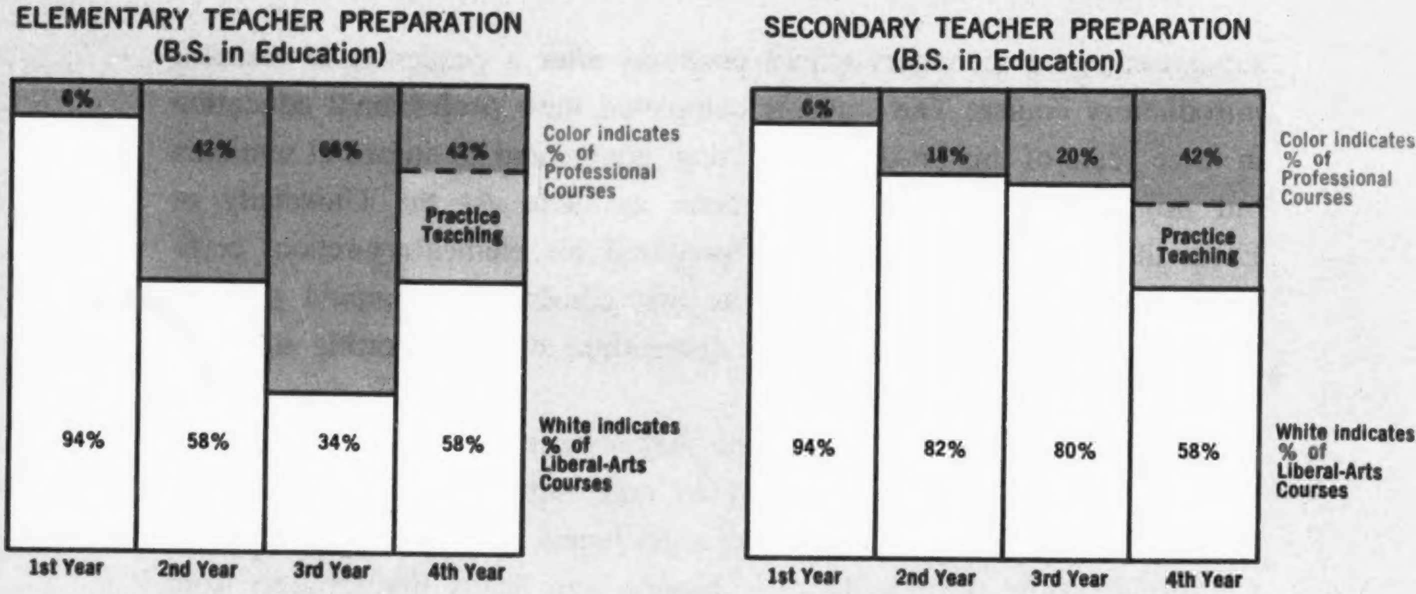
Teaching interns observe a social-studies class in an elementary school at Newton, Massachusetts.

supervised, paid secondary-school positions after a concentrated summer introductory course. The students completed their professional education in three years of this on-the-job training, augmented by informal seminars but no professional education courses as such. At the University of Louisville, college graduates were prepared for elementary-school certification in two additional years, the first consisting of unpaid practice teaching and the second of a paid internship, with integrating seminars during both years.

Deviating still further from the Arkansas pattern were four Fund-sponsored experiments that sought to take advantage of the teaching potential among not-so-recent college graduates. All four took place in California, where the population explosion and heavy immigration from other states had produced a severe imbalance between teaching staffs and student enrollments. The programs, located in San Diego, Los Angeles, Claremont, and San Francisco, were based on cooperation between school systems and nearby colleges or universities. They differed in many details, but shared two important features: all provided the graduates with at least one summer's study and a year of internship, with concurrent seminars or professional courses in education.

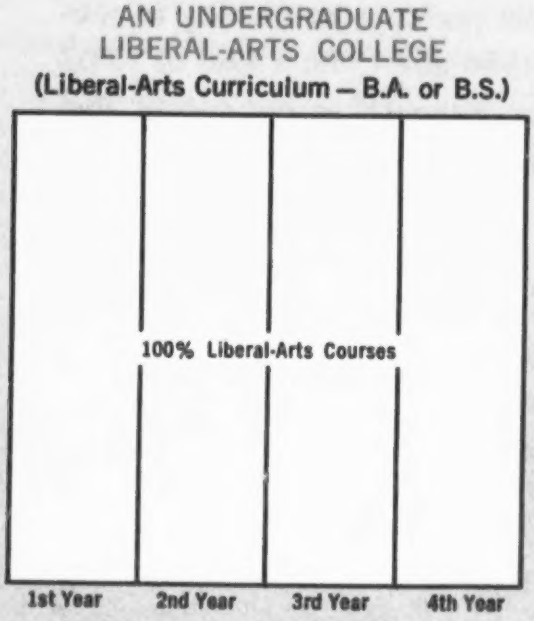
Unique among the earlier programs was a state-wide project in Texas that used open-circuit television to recruit and train college graduates for teaching. This remarkable venture involved every teacher-training university and college in the state, the Texas department of education, and eighteen local commercial television stations. Recruits who enrolled for credit in one of the participating institutions and took a one-year televised course in teacher education received a temporary teaching permit. They could obtain permanent certification by additional professional training in residence and classroom experience. Between 1956 and 1959, a total of 1,007 college graduates enrolled in the program, although at the end of that period only 604 were teaching and continuing on to permanent certification. The experiment was disappointing: the pool of potential recruits was smaller than expected, and the per capita cost of training, in view of the drop-out rate, was high. On the positive side of the account, however, are several gains: the experiment did demonstrate a quick, new way to train a large body of teachers; there have been fewer drop-outs among the mature persons who continued, than there would have been among an equal number

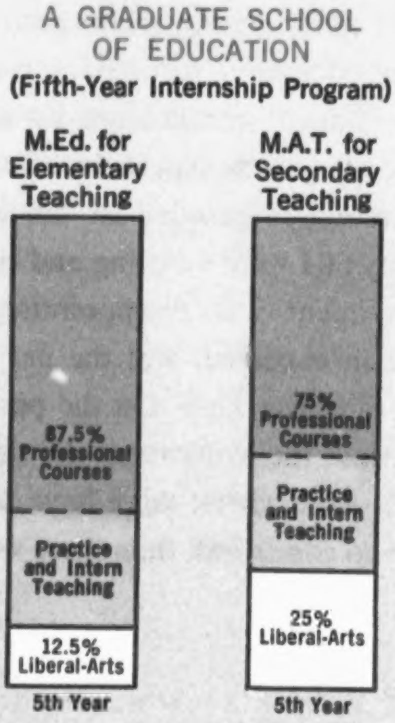
A COLLEGE OF EDUCATION WITHIN A LARGE UNIVERSITY


ELEMENTARY TEACHER PREPARATION
(B.S. in Education)

SECONDARY TEACHER PREPARATION
(B.S. in Education)

TWO PATTERNS IN TEACHER EDUCATION **Shown above are examples of four-year undergraduate programs—the prevailing pattern for teacher education in the U.S. The prospective elementary-school teacher here spends just under 40% of the four years in professional courses, the prospective secondary-school teacher 20%. The latter's liberal-arts courses include an academic major in his future teaching field. A newer pattern is the fifth-year program which leads to an advanced degree. In the example below, a liberal-arts graduate prepares for teaching in a concentrated postgraduate year. For elementary teaching, the fifth year is mainly professional, with a quarter of the year devoted to practice and intern teaching. For secondary teaching, the fifth year includes further work in the student's teaching field (his undergraduate major).**


AN UNDERGRADUATE LIBERAL-ARTS COLLEGE
(Liberal-Arts Curriculum – B.A. or B.S.)


A GRADUATE SCHOOL OF EDUCATION
(Fifth-Year Internship Program)

of new teachers; the interest aroused by the use of television for teacher training has helped in the growth of ETV (educational television) in Texas; and finally, the state certification requirements have been liberalized to admit college graduates who pass certain examinations satisfactorily, without having taken the special education courses formerly required.

Another effort to attract liberal-arts students to a fifth-year program was based partly on the premise that there need be no sharp distinction beween the four liberal-arts years and a fifth year of professional education. The undergraduate might take a few introductory education courses, and the fifth year would incorporate not only practical teaching experience and education courses, but additional concentration on one's subject specialty, and lead to the Master of Arts in Teaching (A.M.T. or M.A.T.). One such program, initiated in 1952 with Fund support, was a joint effort of the Harvard Graduate School of Education and twenty-nine* leading liberal-arts colleges in the Northeast, including Amherst, Bennington, Bryn Mawr, Radcliffe, Smith, Vassar, and Williams. Yale University, and Vanderbilt University along with George Peabody College for Teachers, later also initiated programs leading to the M.A.T. degree.

The M.A.T. idea was not brand new; Harvard, under President James B. Conant, began such a program in 1936 for secondary-school teachers. The times were not favorable, however; teachers were in oversupply, and there was little incentive for liberal-arts graduates to invest extra time and money in education for the low-salaried teaching jobs then existing, and which were hard to come by, at that. The situation changed after World War II. Salaries improved slightly, the demand for secondary-school teachers rose, and in many quarters people began to recognize the need to attract graduates of the liberal-arts colleges to teaching. All this being so, the Fund agreed that the time was right for a revitalized graduate program at Harvard (which had, in 1951, added a one-year Master of Education program for aspiring elementary teachers). The two Harvard programs have since amply demonstrated their appeal: in the past eight years an increasing number of students have enrolled; registrations have more than doubled from 1952-53, when there were 134, to 1960-61, when there are 290. About three-fifths of these have come from the cooperating liberal-arts colleges. Since 1952 the Harvard Graduate School of Education has trained nearly 1,700 teachers, three-quarters of whom have enrolled in the M.A.T. program. A less tangible but equally important result has been a more favorable attitude by both the faculties and the undergraduate students of the colleges toward teaching as a career.

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*Harvard now has working agreements with forty-five colleges.

At the outset the financing of a fifth year of training was a problem for many students, which the Fund helped solve with substantial fellowship grants. Clearly, however, the new program eventually had to find

Fifth-year students at Harvard bring to graduate studies experience gained as interns in responsible classroom teaching.

sustained means outside the foundations. It was essential that support for it be built into the regular school and college budgets. The most promising solution was the Harvard internship plan, initiated in 1955 and since adopted with modifications at Cornell, Goucher, the University of Arkansas, Central Michigan University, the University of Wisconsin, and elsewhere. Under this plan, cooperating public schools accept the intern teacher as a staff member on a part-time, part-pay basis, e.g., the intern might teach for half a year, at approximately half pay. The schools thus become partners of the colleges in educating their own future staff members, much as hospitals have long been the partners of medical schools in training doctors. This happy and equitable solution to the financial problems of the graduate students has had, and should continue to have, a beneficial influence on teacher recruitment.

A "breakthrough" in education

One of the serious obstacles to the recruitment of able persons with liberal-arts backgrounds to teaching, or to the retention of such persons in the field, is the lack of incentives in public-school teaching. Ability and achievement are not rewarded with advancement in most school systems; in many schools all teachers perform substantially the same duties, superior teachers being burdened with the same time-consuming chores as the less gifted teachers and earning no better pay.

In 1956, Dean Francis Keppel of the Harvard Graduate School of Education addressed several memorandums to the Fund concerning a program for a "breakthrough" in education, one aspect of which was a suggestion about the recruitment and training of teachers. He pointed out that the innovation known as team teaching was not only a technique for the more efficient use of teaching talent, but that it could aid the problems of recruitment by offering powerful incentives to the highly capable student, and would establish teaching as a career with prospects of advancement and of financial reward. Team teaching, in essence, provides a way for a group of teachers to pool their knowledge and talents in the instruction of a larger number of pupils than any individual teacher would normally handle alone. It carries the old principle of the division of labor into the schools, and takes the teacher out of the isolation of the self-contained classroom. Besides this mobility and better division of talent, the team principle arranges for the highly gifted teacher to be assisted by other teachers, trainees, and aides who perform such time-consuming duties as record keeping, the holding of drills, the administration and marking of tests, and many other essential, semi-skilled tasks. Schools reorganized so as to employ several different levels of skill and competence would be able to pay teachers according to their clearly differentiated roles, as it is done in business and the professions. And this prospect of attaining a superior position, and its attendant pay, would attract the more talented people and thus greatly aid in the recruitment effort.

In 1957 and 1958 the Fund, therefore, supported a number of projects in universities and graduate schools of education, designed among other things to train teachers for differentiated roles, in partnership with neighboring public schools. These institutions included Brown, Chicago, Yeshiva, Harvard, Peabody, Johns Hopkins, Claremont, Stanford, and New York University. In 1959, some of these pilot programs received larger, longer-term grants from the Ford Foundation, which to date has granted over $19 million to thirty-one colleges and universities from Hawaii to Vermont, including private and public universities, liberal-arts colleges, and teachers colleges. An evaluation of the impact of this program should be possible in a few years.

Training of college teachers

In addition to the recruitment and training of public-school teachers, the Fund has been concerned about the recruitment and training of college teachers. Two Fund reports published in 1955 and a Fund-assisted study made in 1958-59 have warned of the prospects of decline in the quality and number of college teachers. The study, made by the Research Division of the National Education Association (NEA), showed, for example, that the proportion of new college teachers without master's degrees had increased by 2.6 per cent over the previous five years while the proportion with Ph.D.'s had dropped by 7.6 per cent. Thousands of college students were thus being deprived of the contact with advanced scholarship that the doctorate traditionally signifies. The Fund has encouraged various colleges to review their graduate programs in the light of this problem, and has supported studies of the financial difficulties that limit the number and distribution of graduate students. Meanwhile, the $2,400,000 granted by the Ford Foundation in 1960 to fourteen universities for a new type of master's degree program may reveal one way to increase the number of scholarly, well-prepared college teachers: these grants will enable a variety of institutions to select superior undergraduates for a rigorous three-year sequence of work. Students begin graduate-level work in the third and fourth year of college, and proceed to a further year of graduate work, including some supervised college teaching. This would provide practical experience, lead to a master's degree, and give the candidate a good headstart toward the doctorate.

In contrast to elementary and secondary-school teachers, many college teachers have concentrated so much on their own special field of study as to neglect essential teaching competence. Young college instructors often begin teaching with little awareness of the arts of communication, the techniques for motivating the student to learn, and the most effective techniques of helping him learn. The Fund therefore supported programs affecting some 300 interns in twenty-four colleges and universities, testing a method to help them become skilled and effective college teachers. In general, the method provided each new instructor with a mentor—an experienced older faculty member—whose teaching he could observe and from whom he could get advice and criticism of his own teaching. He also participated with other beginners in seminars for the discussion of common problems and experiences. The interns seemed to find the experience valuable, and some of the colleges and universities have carried on parts of this activity after Fund support ceased. The plan remains as one proved method of teacher training, easily adaptable to any campus.

Fellowships for advanced study

Still another way to enhance the attractiveness of the teaching profession is to increase the opportunities within it for further intellectual growth and self-fulfillment, especially for secondary-school teachers. Also, the speed with which many branches of knowledge are now proliferating requires, for the very maintenance of teaching standards, that teachers be assisted in keeping up with new developments in their fields. From 1952

to 1956 the Fund granted nearly $5 million for about 1,000 fellowships to selected high-school teachers all over the country for a year of study or travel. In 1953 and 1954 this program was supplemented by a series of summer institutes at several university centers, at which high-school, junior-college, and college teachers came together, field by field, for refresher and updating studies. At the college level the Fund awarded about 1,000 fellowships between 1951 and 1954 to faculty members for a year's study at colleges and universities other than their own.

The results of the two fellowship programs, both in individual growth and in enhanced subsequent teaching contribution, have been encouraging. The Fund's efforts in this area have led, at least in part, to the Ford Foundation's support of the Woodrow Wilson National Fellowship Foundation, which awards 1,000 graduate-study fellowships per year to college teachers, and of the John Hay fellowships, a program doing the same for about seventy-five high-school teachers.

Measuring the outcome

Is it possible to draw up a balance sheet for this ten-year program of teacher recruitment and training? In so complex an undertaking, the most significant evaluation would be in terms of the learning of the students taught by the experimentally trained teachers. Such an investigation would be complex and costly and, because criteria are debatable, would still not produce indisputably valid statistics. Consequently, attempts at evaluation have been less ambitious, being limited to *1)* having independent professionals of accepted standing observe and appraise the competence of the new teachers, and *2)* testing the new teachers' knowledge and comparing it to that of more conventionally trained teachers.

By these criteria, the great majority of teachers emerging from Fund-supported projects have been more than satisfactory. In the judgment of their employers, most are "successful" and many are "superior." It is also certain that several thousand persons were drawn into the teaching profession in this period who would not otherwise have come into it, had only the previous opportunities for training been available. These results show a number of ways in which more and better-qualified teachers might be obtained on a larger scale in the future.

Efficient Use of Teachers' Time and Talent

A variety of new techniques, using both human and mechanical aids, can make the top-notch teacher available to far more students in the course of the working day and the school year.

Efficient Use of Teachers' Time and Talent

WHAT DOES IT MEAN when a nation is lacking 135,000 teachers or 131,000 classrooms? Does it mean that corresponding millions of children go untaught or stay out of school? Hardly. It means, rather, crowded classrooms, double sessions, overworked staff, and harassed administrators trying to maintain the educational status quo by makeshift arrangements and patchwork. This situation has existed in all but the more fortunate school systems since World War II. As the enrollment bulge has moved up through the elementary schools to the high schools, the public has begun to accept the "teacher shortage," like the "farm surplus," as a commonplace of life in midcentury America. Every fall has brought a new set of alarming statistics on the gap between teacher supply and demand, and every fall, somehow or other, the understaffed schools have absorbed additional millions of children.

Valiant attempts, to be sure, have been made during the 1950's to increase the supply of good teachers by many means, including those described in the preceding section. But the situation and the projections of the future have been so ominous as to demand not only one major approach

In tomorrow's schools, students may spend 40% of their time in large groups . . .

but several different ones, assayed at the same time. The Fund, therefore, decided to explore the better, wider, and more efficient use of the teachers already in service, especially the ablest of them. If top-notch teachers could teach larger numbers of students with greater impact, not only would the shortage be eased, but the quality of instruction could be improved.

When the shortage of teachers first grew serious after World War II, several agencies and associations released conflicting figures, and there was little agreement on the dimensions of the shortage. To get definitive statistics, the Fund in 1955 undertook a nationwide study of supply and demand, projected its findings into the future, and published the results in a bulletin called *Teachers for Tomorrow*. As already mentioned, the Fund estimated that by 1965 the nation would need half a million more schoolteachers, and 300,000 more college teachers by 1970.

In deriving these figures, the Fund used the traditional ratios of one teacher to every thirty elementary-school pupils, one to every twenty-five secondary-school students, and one to every twelve to fifteen college students. But how valid are these ratios? "Is it better to be five feet from a mediocre teacher or fifty feet from a great teacher?" Thus a leading educator posed the question of the ideal teacher-pupil ratios. Many laymen would recognize the virtue of the latter alternative. And some school principals, superintendents, and college presidents are willing to challenge the basis for the teacher-student ratios along with other cherished tenets of educational folklore. The Fund has supported a number of the resulting experiments in what is usually referred to as "staff utilization."

. . . the rest in small groups or individual study.

Americans underpay their teachers, passively suffer the teachers' status to decline, overload them with impossible burdens—but still maintain a reverence for teaching and for the image of the teacher who can work miracles. Whether it is Socrates or Erasmus, one man's Miss Kempton or another's Miss Maltby, the cherished ideal of the teacher serving the mysteries of the teaching process lies at the heart of our views on education, and influences the latest educational reforms designed to help the teacher carry out his mission. Those who insist on maintaining the status quo of school organization—the self-contained classroom, the egg-crate schoolhouse, the hallowed ratios — are clinging to external forms rather than preserving the essence of the pupil-teacher relationship. In meeting the emergency in orthodox ways, they jeopardize the quality of education—and in the end either give up their conventional teacher-student ratios as additional pupils crowd into the standard classroom, or preserve them by placing inadequately trained teachers in the schools. During the 1950's far too many American schools felt they had to choose between these alternatives, without recognizing that a third one also existed—namely, that the shortage may be partly met by using the available teachers more effectively and efficiently.

The first attempts at using this approach were made a decade ago, but they were few in number because experiments are costly and most schools and colleges have no budgetary resources for such spending. This, then, was an area in which a private foundation, devoted to the advancement of education and committed to experiment, could be of assistance; accordingly, the Fund decided to enter it. During its first ten years the Fund has spent about one-fifth of its resources – some $10 million–on projects dealing with the improved use of teachers. Some of these projects were designed to provide human assistance to the able teacher, and others to furnish him with modern technological aids, but most have sought to employ both.

Teacher aides

If educators all over the country recognize the name of Bay City, Michigan, it is very likely because of an experiment that started there in the early Fifties. This, the Fund's first venture in teacher utilization, consisted of a grant in 1952 to Central Michigan College of Education (now Central Michigan University) in support of a joint proposal from the college and the public schools of nearby Bay City. The idea was to have carefully selected and supervised nonprofessionals in a few Bay City elementary classrooms take over some or most of the teachers' nonprofessional and semi-professional tasks such as keeping records, readying classroom equipment, collecting lunch money, and the like. The college and the schools proposed first to analyze the average teacher's activities, and then to try out the use of aides in Bay City; if this proved out, the plan would be applied in other Michigan cities, and perhaps throughout the state. After preliminary analysis had revealed that teachers were spending anywhere from 21 to 69 per cent of their time on nonteaching chores, Bay City hired housewives and other women in the community as teacher aides to perform some of these housekeeping, bookkeeping, and paper-correcting chores. This freed the teachers to devote more time to preparing lessons, leading discussions, counseling, and performing other skilled professional duties. Modest in scope though it was, the experiment generated nationwide interest and comment, and the "Bay City Plan" soon became the generic name for any similar arrangement using teacher aides.

The Bay City Plan also generated a fair amount of professional opposition, both vocal and published. Nevertheless, it worked so well in the Bay City elementary schools that it was extended to the secondary schools, and now operates in some fifty Michigan school systems. Personnel trained in Bay City and at Central Michigan University have helped set up similar

Many hands make the teacher's work more effective and meaningful. To help mitigate the shortage of able teachers, many schools now employ aides who can take over essential but nonprofessional tasks such as keeping records and supervising lunchrooms, and semi-professional tasks like grading papers and drill work. Teachers thus relieved have more time to prepare lessons, to keep up with their subjects, and to work with students in small groups or individually. Schools also are making good use of interns who, as part of their professional education, teach under supervision.

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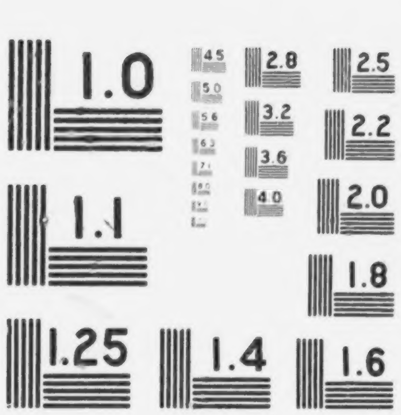
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963

plans in Utah, Colorado, Iowa, and Minnesota. Teacher-aide plans of many sorts are now operating in school systems across the nation, using approximately 5,000 aides. A minor unexpected bonus in Bay City was the decision of five of the eight original aides to go on from this beginning to further study, in order to become full-fledged teachers. This pattern has often been repeated since.

Other early teacher-aide projects were carried on in Fairfield, Connecticut, and in New York City. The Fairfield project involved unpaid volunteers and paid assistants, with the volunteer part developing in the familiar P.T.A. pattern in which mothers and other cooperative citizens help out in the schools. Its special goal was to produce a practical handbook to guide communities in the best ways to recruit, train, and use such willing hands. A similar project in New York City, sponsored by the Fund and the Public Education Association, began with twenty volunteers in a single school in 1956 and grew by last year to nearly 250 volunteers in twelve schools, performing 175 different kinds of activities and working a total of over 17,000 man-hours during the year.

The Fairfield, Bay City, and similar experiments have demonstrated that most objections to the use of aides arise from their misuse in the past, and that a well-planned, carefully supervised program can avoid the risks inherent in the use of nonprofessionals in the classroom. Fairfield has, in fact, demonstrated that a good program can use competent aides judiciously and advantageously in the most controversial task of all—namely, helping with instruction—in such areas as spelling, arithmetic drill, and make-up work after absences. Most of the Fairfield aides, indeed, have spent more time on this than any other single task.

Still another use of nonprofessional aides is the employment of college-educated housewives to help solve a dilemma: how to give high-school students the extra writing assignments needed to improve their writing ability without overwhelming English teachers with paperwork. From 1956 to 1959 the Fund supported a project designed by Educational Testing Service of Princeton, New Jersey; in essence, it proposed to determine if English classes could use lay readers to correct themes, and then to help schools recruit and train housewives for this purpose. After initial trials in three school systems in New Jersey and Massachusetts, ETS extended the experiment to sixteen high schools in cities all over America. The pilot studies showed such encouraging results that although Fund support ceased in June, 1959, the schools involved in the experiment have continued to employ lay readers on their own. Moreover, the idea is spreading: as of 1961 about 120 additional school systems employ lay readers (these, like the schools in the original experiment, make use of the ETS tests for the screening of applicants). In general, schools where lay readers have been assisting English teachers are able at least to double the amount of writing assignments. And it appears that the average community abounds in college-educated housewives with the requisite skills and background who are eager for such productive part-time work.

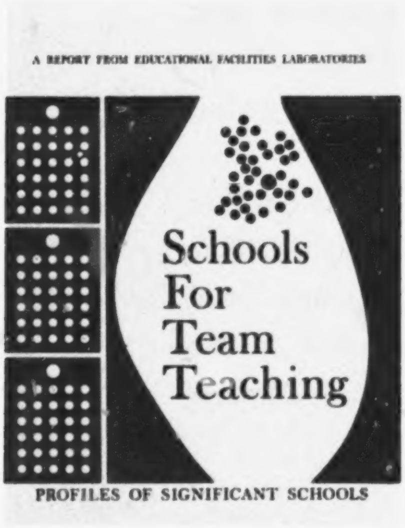
A promising extension of the lay-reader experiment is the so-called Rutgers Plan. It was developed at summer workshops for high school English teachers financed by the Ford Foundation in 1959 and 1960, and is being tried out, with Fund support, in Chicago, Detroit, and elsewhere. The plan employs qualified housewives not only as readers to grade papers, but also as aides to direct independent reading periods and as technicians to conduct periods of "self-correcting homework" (programed exercises with immediate feedback). Each experimental English class is split into two sections: while one section meets for class discussions, the other engages in independent reading, and once a week both sections join for tests and follow-up discussion on the self-correcting homework. Relieved of important but time-consuming paperwork and drill, the English teacher concentrates on such basic professional tasks as conducting class discussions of books and student papers, and giving individual attention to the very fast students and the very slow.

The significance of the Bay City type of project is that aides are used *to improve the quality of education* by freeing teachers to spend their time in actual teaching. This use of aides was a distinct departure from the past, particularly from the monitorial system that flourished in the United States a century and more ago, in which aides were used to educate large numbers of children inexpensively–and inadequately.

Team teaching

One outgrowth of the teacher-aide plans is team teaching, which was briefly described above (see page 37). Expanding the aide-plan concept of freeing teachers from nonprofessional chores to concentrate on more valuable contributions, team teaching is based on the idea that talent is wasted, the teacher frustrated, and education downgraded when all teachers, regardless of ability or training, are treated alike and have to function in classrooms of the same dimensions, with the same kinds of responsibilities, the same number of students, and the same salaries. These conditions might be alleviated by grouping teachers into teams, each led by an experienced and able senior instructor. As previously noted, this line of reasoning was embodied in one of the 1956 memorandums to the Fund from Dean Keppel, and the Fund felt that the idea deserved thorough testing.*

There is no standard pattern for teaching teams. They may be large, consisting of six members, or small, consisting of two. They may or may not include nonteaching aides; they may operate only in certain grades, throughout the school system, or in various combinations. They can be adapted to schools of almost any size.

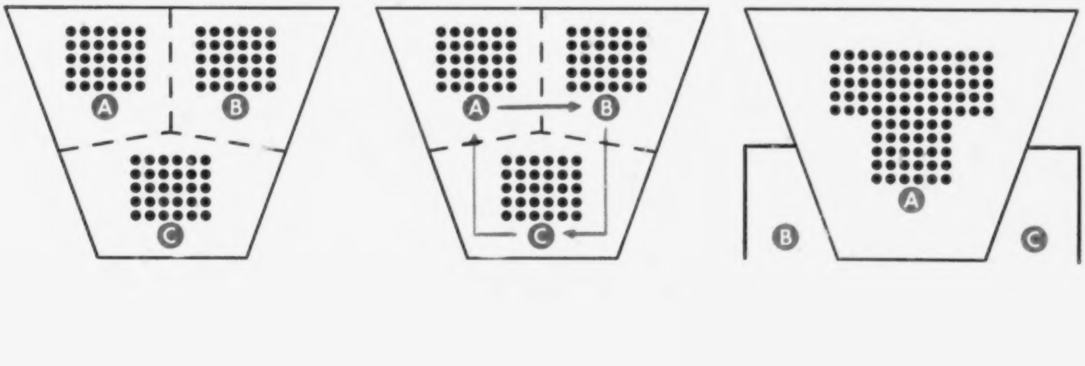


A REPORT FROM EDUCATIONAL FACILITIES LABORATORIES

Schools For Team Teaching

PROFILES OF SIGNIFICANT SCHOOLS

The diagram below illustrates one possible pattern of team teaching. The homeroom teachers of three fourth-grade classes are also subject specialists; instead of spending all day with the same thirty children, they spend part of it teaching their specialty to the others. Operating as a team, the teachers can organize the children into groups of different sizes. For science instruction where visuals are used, for instance, one teacher can handle ninety children as easily as thirty. This leaves her two colleagues free to plan their own programs or to take smaller groups for advanced or remedial work. Book at left was prepared by Educational Facilities Laboratories, Inc., a nonprofit corporation established by the Ford Foundation in 1958 to help schools and colleges with their physical problems by encouraging experimentation and the spread of knowledge about school facilities.



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*For lively vignettes of team teaching and other related experiments, the reader is directed to Arthur D. Morse's *Schools of Tomorrow—TODAY!*, commissioned and published in 1960 by the State Education Department of New York. A large number of the experiments described were aided by grants from the Fund and the Ford Foundation.

But certain features are common in all team-teaching experiments. They aim at educational excellence mainly through more efficient use of specialized talents and through added incentives to the teaching profession. Team teaching permits the school system to make the most of the differences among teachers, capitalizing upon individual experience, subject specialization, and variations in personality and outlook. This is both satisfying to the teachers and beneficial to the students. And by relaxing the rigid classroom pattern to permit large groupings for certain lectures, tests, and the like, it makes teacher time available for small-group classes and extensive individual work. Team teaching is no substitute for hard work, and not a way to trim the educational budget, but the results obtained have shown clearly that it is a way to raise the quality of education without necessarily enlarging the budget.

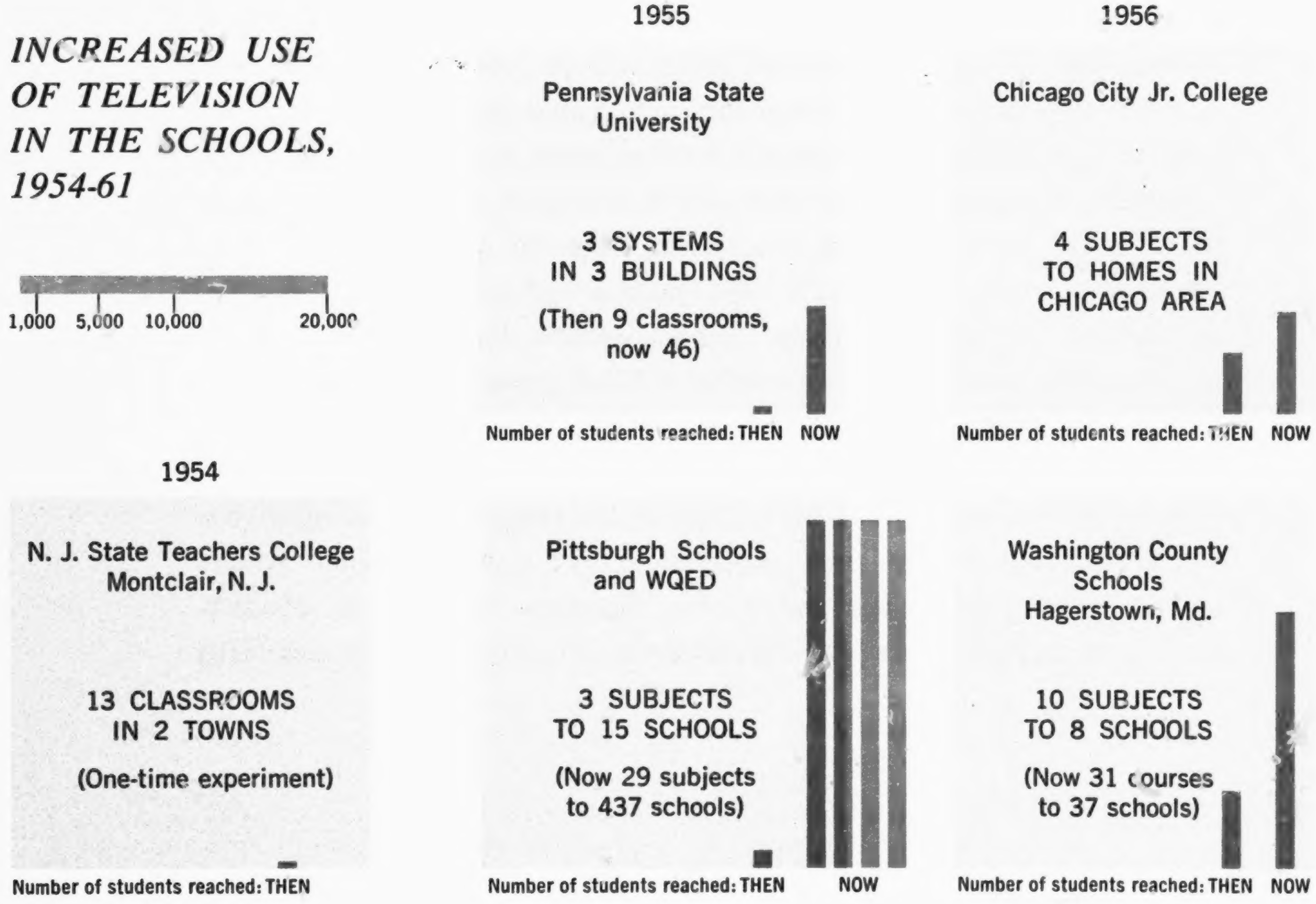
Technological innovations: TV, tape, teaching machines

Any thorough consideration of ways to make better use of existing teaching talent was bound to include experiments with technological devices and the new media of communication—not to replace teachers, but to carry the works of the best teachers to a much wider body of students. Yet the subject of mechanical aids seemed even more controversial than that of human aides. Many educators and teachers have bridled at the very idea. Some of them, despite the teacher shortage, feared that the machine might come to replace the teacher; others saw the machine as, at best, a "gimmick," and at worst a threat to the true purposes of education. The fact is, of course, that throughout history new inventions, from the pictograph on, have changed the role of the teacher. But teachers and teaching have survived and benefited by these inventions, and it is certain that radio, film, recordings, teaching machines, and television will not replace the teacher either.

Of all the new technological resources adaptable to education, television is the one to which the Fund has given closest attention and largest support. The Fund has done so because in the early Fifties television was still a brand-new tool of great potential, but of unproved value. A very few schools were using it to supplement classroom work, but its effectiveness for regular instruction was still unknown. It was so expensive, especially as an initial investment, that few schools or colleges could try it without substantial outside help.

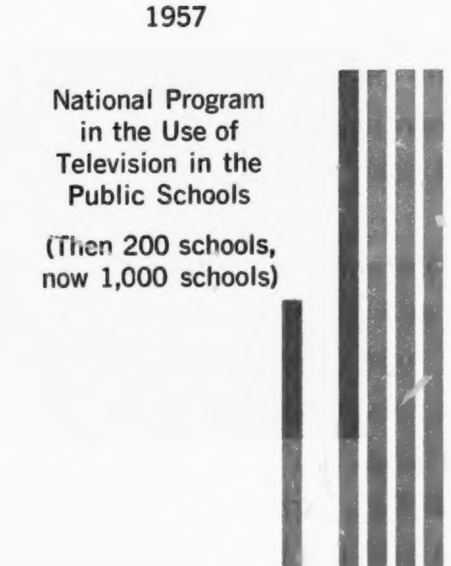
The first of the grants made by the Fund in this field went to New Jersey State Teachers College in Montclair (now called Montclair State College), to help a group of teachers prepare lessons in American history for presentation over closed-circuit TV to fifth-grade pupils in nearby schools. The results were satisfying, and Pennsylvania State University thereupon tried closed-circuit TV at the college level. After four years, the administrators were so thoroughly convinced of its value that the entire support of the program was assumed by the university. By now, more than 40,000 students at Penn State have taken one or more of the twenty-five televised courses offered as part of the regular curriculum.

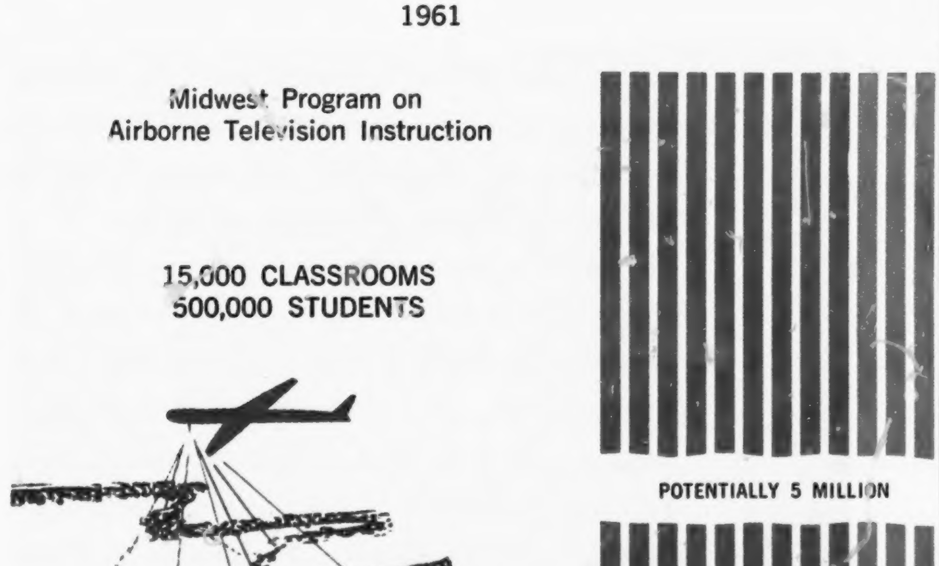
While closed-circuit TV may be appropriate for one school, one school system, or a densely populated area, regular open-circuit telecasting is a more economical method to reach widely scattered audiences. The Federal Communications Commission, early recognizing the potential value of the medium for education, set aside 264 channels for educational purposes. These channels were made available to educational institutions in com-



INCREASED USE OF TELEVISION IN THE SCHOOLS, 1954-61 munities as they demonstrated their ability to support and manage educational TV stations. Thirty-four such stations have been set up with help from the Fund for Adult Education, which was established by the Ford Foundation in 1951.

In 1956 the Chicago Board of Education initiated the first city-wide TV project using open-circuit telecasting to teach college-level courses. The board believed that people living in the area could successfully take courses given by Chicago City Junior College without coming to a classroom. Courses were televised both during the day and at night, study materials were made available, and students were required to mail in written work for grading and to attend occasional conferences and examinations at several branches of the college. The program worked so well that it has been continued by the board without Fund assistance since 1959 as an integral part of the college budget; nine courses are given each semester and lead to the junior-college degree of Associate in Arts. Enrollments via TV have matched full-time regular enrollments in numbers. The cost of TV instruction per student is dropping down close to the cost of conventional instruction, and will eventually be lower. Many of the people





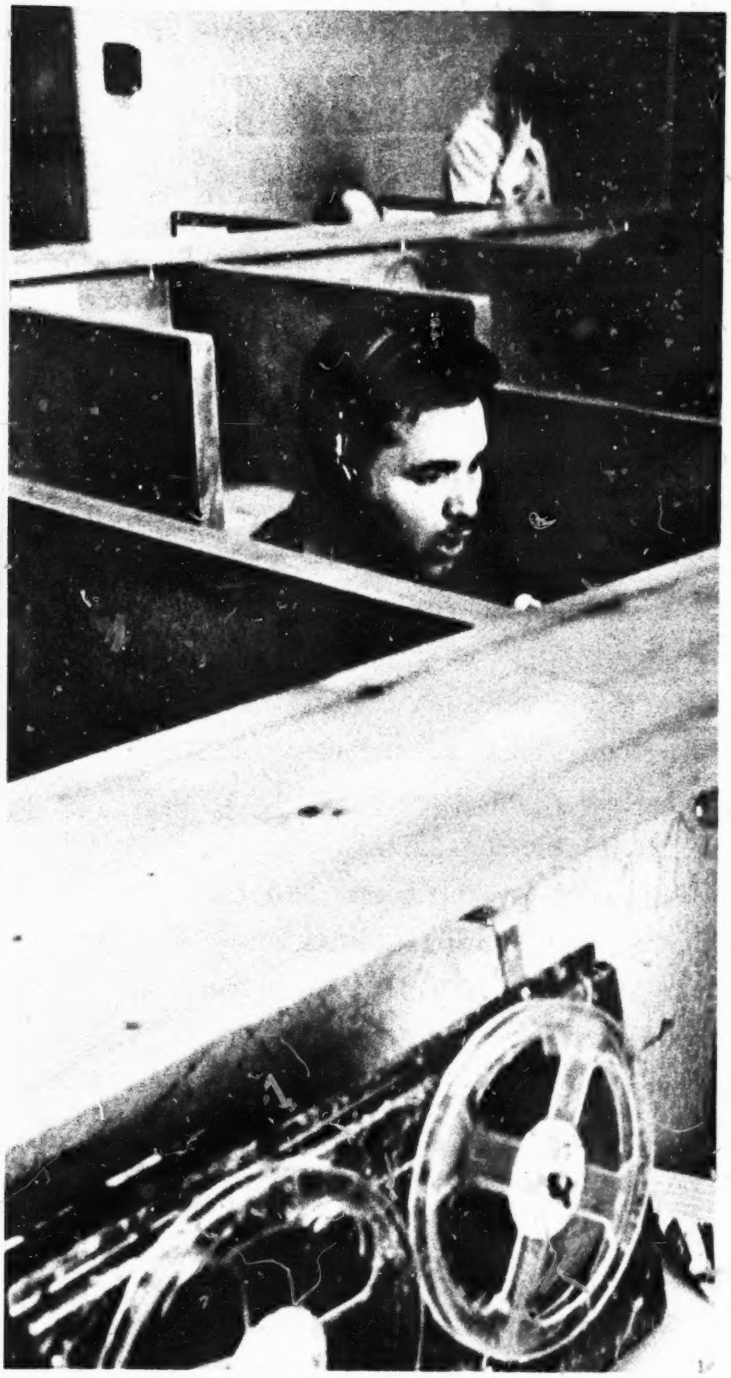
attracted to this program are housewives and other adults who did not have the chance to complete their education. Once started on junior-college work, they are likely to go on to a senior college and obtain a degree. Because many of them hope to become teachers, it is important to education that these people be encouraged to resume their studies.

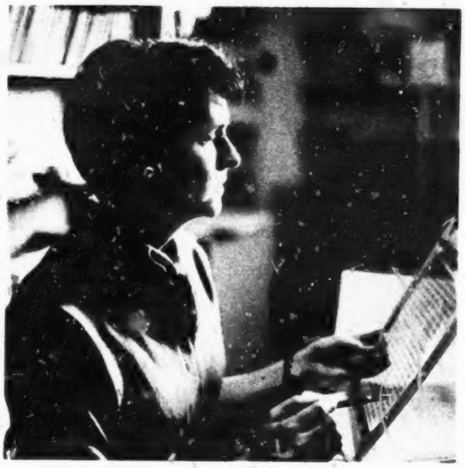
Outstanding among Fund-supported TV experiments in the public schools were those conducted in Pittsburgh, Alabama, and in Washington County (Hagerstown), Maryland. In cooperation with the local educational TV station (WQED), Pittsburgh in 1955 offered courses in reading, French, and arithmetic for fifth-grade students, this being the first public-school attempt anywhere to teach basic subjects via open-circuit TV. During the next four years, twenty-nine more courses were added, and the program was joined by most public schools in the metropolitan area, by a large number of parochial schools, and by many outlying systems in western Pennsylvania. Today 125,000 students in 437 schools are receiving part of their instruction from Pittsburgh's two ETV stations.

Television instruction on a state-wide basis was first explored in 1956 by the University of Alabama. Using the state ETV network, which reaches about 80 per cent of the public schools, the university—in cooperation with four other agencies—is providing courses for credit at both school and college levels. Courses for teachers are also telecast. The number of participating schools has increased from 100 in the first year to approximately 600 in the 1960-61 school year. An estimated 300,000 pupils are today receiving televised instruction in Alabama, many of them in subjects such as music, art, languages, and science, for which their schools previously had poorly qualified teachers or none.

The largest single experiment in public-school teaching by closed-circuit TV is taking place in Hagerstown, Maryland, and in surrounding Washington County. This project started in the fall of 1956. Today, nine-tenths of the 18,200 pupils in Washington County's school system are receiving at least one period of televised instruction a day. All together, 122 lessons a week in all major subjects are transmitted live, plus nineteen filmed or taped courses. To handle its present student and teaching load by purely conventional methods, Washington County would have to hire no fewer than 135 additional teachers.

More than 12,000 people have visited Hagerstown—teachers, admin-





Technology can extend the reach of the ablest teachers, and facilitate independent study, through use of TV, films, radio, tapes, recorders, projectors, self-teaching devices. At right (top to bottom), teacher prepares transparency; students use teaching machines; overhead projector makes science vivid to large class. Above, language laboratory.

istrators, journalists, school-board members, and curious laymen. No other TV project for in-school instruction has attracted greater national and international attention. Supported initially by the Fund, and during the past two years assisted by the Ford Foundation, the program has gained steadily increasing county and state support, assuring continued use of television after the Foundation's assistance terminates this year.

A different approach to TV instruction has been adopted by two colleges and two universities in Oregon: they pieced together a common network, using the local ETV station at Corvallis for telecasts to 3,000 students. This cooperative effort brings outstanding professors to students who would not normally have the opportunity to study under them and makes the dominant specialties of each school available to the students of the other three. In effect, it is a kind of far-flung, electronically assisted team teaching.

By 1957 a number of the country's leading schools and colleges were using or experimenting with TV in various ways. Their results were sufficiently reassuring, and the teacher shortage was urgent enough, to justify the beginning of larger-scale applications. A notable step in this direction was a comprehensive experiment jointly financed by the Fund and the public-school systems of three states and of a dozen cities scattered across the nation. Known as the National Program in the Use of Television in the Public Schools, it has achieved two objectives: first, it showed that TV could be used to teach very large classes, with resultant savings in teaching time and classroom space; second, it gave preliminary confirmation to the belief that the use of TV could improve the quality of teaching without an increase in cost.

On the first point, many schools in the National Program found that, as in Hagerstown, large-class TV teaching frees many teachers to give a fair amount of their time to small classes and to individual instruction for both very rapid and very slow learners. Other schools, attracted by the results, have joined the program as it continued, and from its present widely scattered project centers (there are sixteen today), it reaches some 300,000 students in about 1,000 schools. Financial support since 1958 has been granted by the Ford Foundation with the understanding that the institutions taking part will assume full operating costs at the end of the 1961-62 school year.

The second point is more controversial. The schools in the National Program have apparently achieved substantial savings in per capita costs: for example, in Dade County (Miami, Florida), where there are 30,000 students enrolled in TV courses, the school system has been able to handle nearly a third more students than it was designed for, and to save the equivalent cost of twenty-seven additional teaching positions and twenty-nine more classrooms. In general, however, the cost question has not yet been given a final answer. Analyses of costs are complicated by the fact that in some experiments, such as Hagerstown, the equipment was donated and installed free of charge. Television production is expensive, requiring engineers, cameramen, and an assortment of technicians. Costs also vary when other visual aids particularly suited to the television medium, such as films and slides, are used. Early TV lectures were broadcast just as they took place in live classrooms, but this was found to be far less effective than setting up studio classrooms without live students. And while it is true that one teacher can reach many more students via TV, he must spend a good deal more time in careful preparation than he does ordinarily. Many a studio teacher who appears on camera for one period a day needs at least the balance of the day for advance work. And, of course, the classroom teacher is not dispensed with.

Altogether, the question of costs and the analysis of the operational "breakeven" point are complicated. Several earlier projects attempted to locate that point: Penn State, which has made the most thorough accounting thus far, concluded that straight televised instruction became comparable in cost to conventional methods when 200 or more students were taught simultaneously in a given course. But elsewhere costs and the breakeven point may run higher or lower–Miami University in Oxford, Ohio, for instance, places the breakeven point at 220 students. Much remains to be learned on this question.

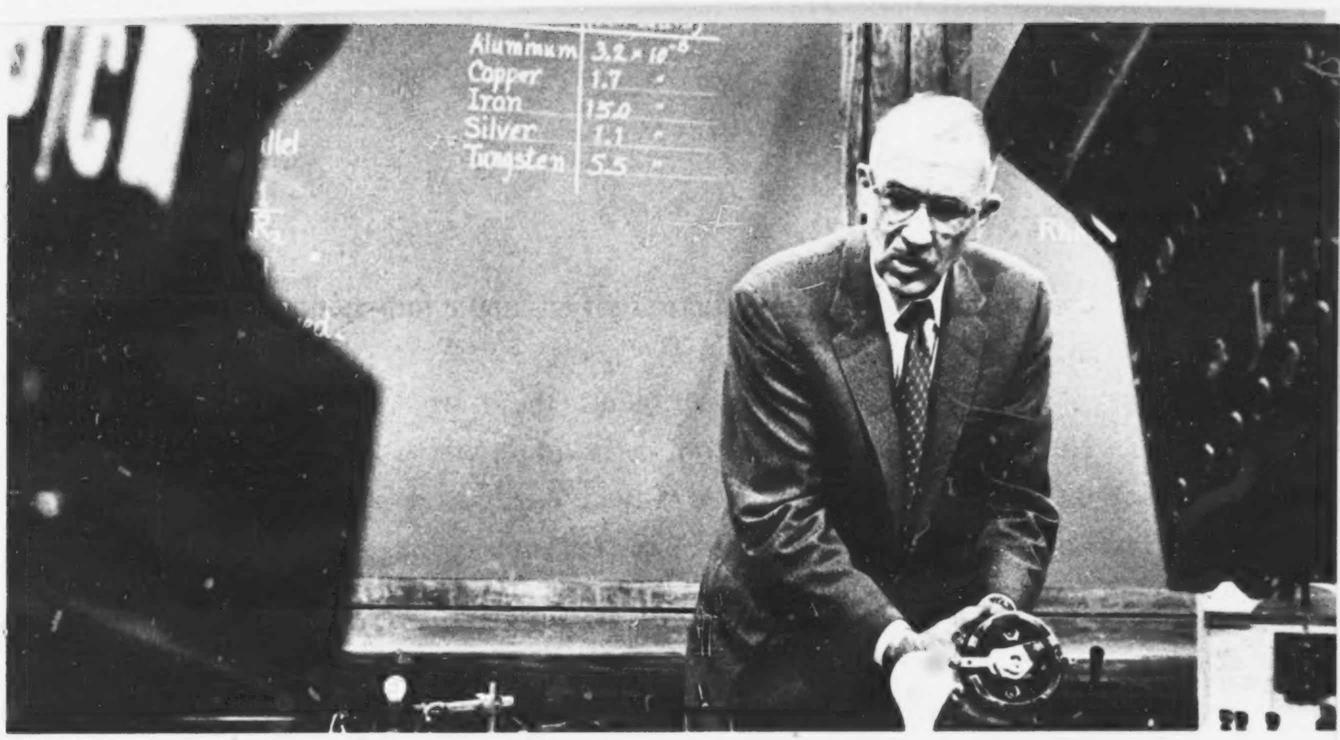
Possibly helpful in reducing the per capita cost is the recently developed technique of airborne TV broadcasting, which provides the possibility of increasing by many thousands the audience for an instructional program. A plane can reach a reception area that in some cases may be 400 miles in diameter, far larger than that of any single TV station.

A project of this type, which began with a Fund grant and now has Foundation support, is conducted by the Midwest Council on Airborne

Television Instruction. It is scheduled to begin operations in the late spring. A video-tape-equipped plane, circling over northern Indiana, will broadcast TV courses to elementary, secondary, and college students in an area including parts of Wisconsin, Illinois, Michigan, Ohio, and Kentucky, as well as Indiana. The potential audience consists of five million students in 13,000 grade schools, high schools, and colleges. Pupils in small, understaffed rural schools will see and hear the same able teachers as do their fellow students in the best urban schools. Until the summer the experiment will operate at limited capacity, offering ten video-tape courses for a few hours several days a week; present plans call for a full academic year of regular daily telecasts to start in the fall. Hundreds of schools have already scheduled the courses in their 1961-62 curriculums. Purdue University serves as project headquarters, and the teachers who have thus far produced their courses on tape were chosen through a nationwide search. In addition to being used in the airborne project, the taped courses will be made available to schools and colleges across the country. As the tapes reach larger audiences, the per capita costs will decline still further, since the taping costs are nonrecurring. To aid other institutions, the council (which is made up of civic leaders and educators from the six states involved) has set up centers at colleges and universities, where committees of teachers, technicians, and laymen counsel the schools and conduct workshops for classroom teachers to help them make the best use of televised courses.

One of the most dramatic and effective uses of open-circuit television has been the nationwide network production, *Continental Classroom*. Originally intended to bring high-school science teachers up to date in their subject fields by exposing them to current developments, *Continental Classroom* began on October 6, 1958, as a five-day-a-week course in modern physics, televised at 6:30 A.M. The sessions were conducted by Dr. Harvey E. White, professor of physics at the University of California (Berkeley); seven Nobel Prize winners and other guest lecturers also took an active part in it. The response was overwhelming. Within the first week 13,000 textbooks were sold, and about 5,000 students registered for credit in over 250 colleges and universities. The daily viewing audience was estimated at 270,000.

The course continued for an entire academic year; in 1959-60 it



Continental Classroom: Professor Harvey E. White teaching college physics over TV.

was repeated and a course in chemistry was added. As with the physics course, the modern chemistry course was primarily aimed at secondary-school science teachers; a number of colleges, however, used it in lieu of a regularly scheduled chemistry course. Taught by Dr. John F. Baxter of the University of Florida, the chemistry course drew an audience of about 525,000 daily viewers, of whom some 3,000 took it for credit at 300 colleges. The next year contemporary mathematics was added; during the first semester Dr. John L. Kelley of the University of California taught modern algebra, and during the second semester Dr. Frederick Mosteller of Harvard taught probability and statistics. Although the Fund and the Ford Foundation provided the largest single contribution to starting *Continental Classroom* ($612,000 of the first year's costs), and the Foundation made grants totaling $1 million for the second and third year, the program is now supported primarily by ten of the nation's leading industrial corporations.

The most important test, however, of any new method of teaching is how well the student learns from it. A good many people feared at first that TV – an impersonal, one-way medium of communication – could not provide the same quality of instruction as the direct two-way teacher-pupil contact in the classroom. Many evaluation studies have been made on how the students who learn from TV compare with those taught in the ordinary fashion. These investigations consider not only the students' ability to retain the facts presented, but their capacity for critical and conceptual thinking, and their ability to make judgments and solve problems in the area concerned.

The Penn State experiment, the most extensive one among the colleges, was the subject of a searching study along these lines from the start. Other investigations were carried on later at Miami University, Fisk University, Stephens College, and Chicago City Junior College, and further tests are continuing under the National Program demonstrations. Virtually without exception, the completed studies have found that the quality of learning does not decline. The TV students do as well as, and in some cases better than, the conventional-classroom students.

This does not happen automatically. Televised instruction requires the student to assume more responsibility for his own learning than does ordinary instruction. Teachers and other adults are strongly enough motivated to take advantage of their opportunities and carry through with them. But off-campus, college-age students may not be thus motivated; for them, the effectiveness of educational TV is greatly increased by mail-in assignments, occasional interviews, and mail or telephone contacts.

The superior teachers that TV is able to bring into the smaller schools, which in many cases could not afford them, count heavily in the success of its students. Although a good teacher is not automatically a good TV teacher, he can learn to become one. His effectiveness can, in fact, be enhanced through proper use of the medium. In addition to superior teachers, TV makes available to students the nation's top scientists, writers, poets, and other stimulating personalities, thus offering educational experiences far beyond anything possible in the conventional classroom.

Once further research and practice have defined the areas where TV can make a unique contribution, it will take its place as a valuable new educational tool. But it remains only a tool, no better than its users. In the hands of imaginative and wise instructors and administrators, TV can and will play a major role in future education.

Audio tapes (magnetic recordings of sound only) and self-teaching machines are two other technological developments whose usefulness is being tested through Fund grants. Schools in the neighborhood of Atchison, Kansas, have made use of audio tapes at all grade levels since 1957. Children in an "electronic classroom" listen by earphones to recorded lessons, slow, average, and fast learners being plugged in to different tapes. The method is especially valuable in helping one teacher instruct double-grade classes. During the past five years tape teaching has spread to fifteen schools in Louisiana, Texas, Kansas, Missouri, and Kentucky, reaching about 1,000 students. A tape curriculum, embodying extensive improvements in the standard curriculum, is gradually being produced; already 800 separate lessons have been prepared. Yearly workshops are spreading the tape-teaching technique to a widening circle of interested schools and colleges.

The so-called teaching machine is a self-teaching device that provides what specialists like to call "programed learning" or "programed instruction." B. F. Skinner, professor of psychology at Harvard, has done a great deal of the basic research essential to the further development of programed instruction. The programed materials he has prepared use stimulating questions, and at the same time permit the student to check his answers immediately against the correct ones. A major advantage is that the student can proceed at his own best speed, independent of his classmates.

Although no school has made extensive use of programed learning, a number of institutions are experimenting with it in a variety of subjects. Besides a grant to Harvard, the Fund has supported projects at Hamilton and Oberlin colleges, and at the Collegiate School in New York City. A result of the experiment at the Collegiate School, where teachers are using the machine "programs" without the machines, is the establishment of the Center for Programed Instruction. The center intends to develop programed materials, to conduct research, and to train teachers in the art of programing.

Combined experiments in utilization

Hundreds of Fund-supported experiments have sought to combine several techniques in the better utilization of teaching resources. No two have been precisely alike, each having its own design, problems, successes, and failures.

The most extensive series of experiments was sponsored by the National Association of Secondary-School Principals (NASSP), a department of the NEA. In 1955 the NASSP's curriculum committee succeeded in interesting a number of strong school systems in experiments combining several new techniques for the better use of teaching time and talent. With Fund support, the committee started a four-year program under the direction of a newly appointed Commission on the Experimental Study of the Utilization of Staff in the Secondary School, the members of which were top-ranking secondary-school administrators and specialists.

When the commission held its final meeting in November, 1960, it could look back on a highly encouraging four years. In that period of time it had sponsored, helped, and studied experiments involving 100 junior and senior high schools in eleven states. Some schools had chosen to experiment with only a single aspect of staff utilization, others with a combination. Interestingly, there was frequently a chain-reaction effect in which a single experiment in a school led to the introduction of additional and different projects.

The commission's work embraced all kinds of schools, large and small, and in many varied settings. There had been no blueprint; all secondary schools had been invited to participate, and to devise their own experiments, based on local needs. A number of projects had operated in consultation with nearby colleges or universities, or with state education departments. A definitive evaluation of the commission's projects is not yet available, but evidence already indicates that they have had a salutary influence on teacher training, on the design of school facilities, on the use of community resources, and—most encouragingly—on teacher salaries. In advance of a definitive résumé, the commission has spread the word of its findings via four major publications, with a total distribution of over 400,000 copies, the latest being its 1961 publication, *Focus on Change*.*

Another series of experiments in staff utilization is sponsored by Harvard and three nearby school systems that were already participating in the internship plan for the preparation of teachers (see page 37). The experiments—some brief and some extended, some small and some large—include team teaching in an elementary school, new techniques of teaching social studies and of grouping students in junior high, and the use of large-group instruction in high school. The experiments themselves are broadly similar in purpose and techniques to others described above. What makes the program unique is its sponsorship: here for the first time university and school are linked together in a formal organization to create experiments, enlarge them into demonstrations, and eventually to put the successful findings into regular school practice. The program, known as the School and University Program for Research and Development (SUPRAD), grew out of Dean Keppel's 1956 suggestions to the Fund, and is an extension of Harvard's experience in training teachers and in analyzing the nature of the teacher's job in relation to recruitment and preparation.

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*The author of all four reports is J. Lloyd Trump, director of the commission, formerly professor of education at the University of Illinois, and now an associate secretary of the NASSP. Dr. Trump is a leading spokesman for new directions in American education.

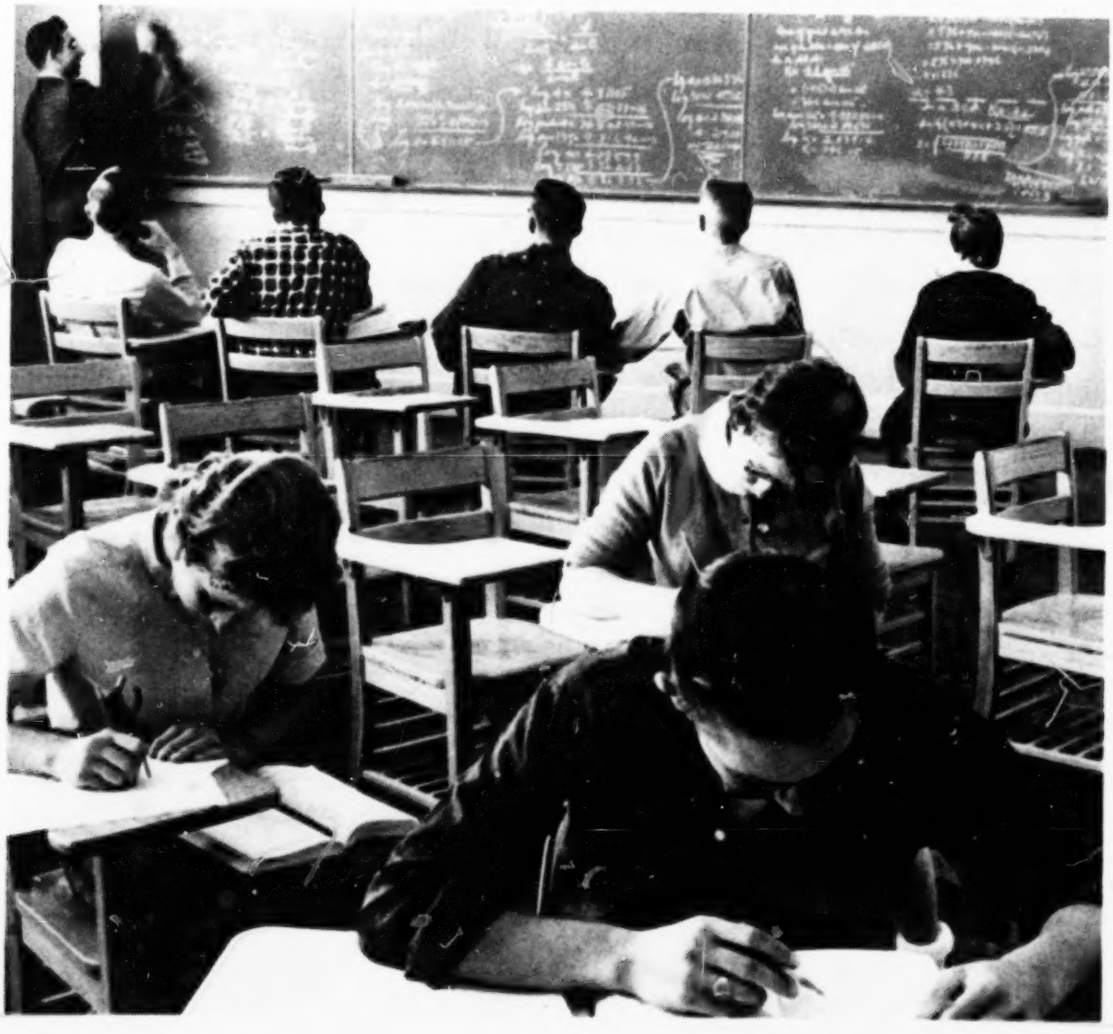
SUPRAD's immediate concern is to help Newton, Concord, and Lexington improve the quality and performance of their school staffs. Its long-range goal is to spur similar developments throughout the United States, and thereby help to bring school practice into line with the new knowledge and research findings in basic educational problems. The Ford Foundation's 1959-60 "breakthrough" grants for teacher education were intended to advance this long-range objective by making joint school-university programs for research and development a major consideration in awarding grants.

A special problem is presented by small rural schools, located in isolated areas, that have a hard time attracting and holding good teachers, especially when there is a general teacher shortage. The problem is most acute for the undersized rural high school that cannot provide the expensive diversified curriculum the times demand. The stepped-up efforts of recent years to consolidate these small schools into larger units have left thousands of them still untouched. By some standards, including Dr. James B. Conant's, a good three-quarters of all American high schools remain too small to be effective. In many cases sheer distance and geography prevent consolidation and, short of complete consolidation, the only possible approach to improving education in these schools lies in helping them to make the best use of staff, time, space, and resources.

The Fund and the Ford Foundation have supported three such improvement projects, involving twenty-three high schools in the Rocky Mountain area of Colorado, twenty-five schools in the Catskill area of upstate New York, and about a hundred rural schools in Vermont and Maine. The Rocky Mountain and Catskill projects include teacher aides, supervised correspondence courses, cooperation among schools, and extensive use of tapes, films, and recordings. The New England experiment is built around the use of college students as teacher assistants in rural schools; originally centered in Vermont's Goddard College, it has proved attractive enough to have expanded in the past four years to six other colleges in Vermont and in Maine.

Another series of Fund experiments concerned the better use of college faculties, which, as became clear in the mid-1950's, were soon to feel the impact of the multiplying school population and of the increasing drive toward college education. Plainly, unless drastic efforts were made to improve teacher utilization, the quality of college teaching could not be maintained, let alone improved, in the years ahead. Accordingly, the Fund, in 1956 and 1957, sponsored a nationwide program of experiments in new patterns of college teaching, conducted by the Committee on Utilization of College Teaching Resources, a group of college and university administrators. The committee's announcement produced ample signs of interest in academic circles: a flood of proposals—nearly 1,100 in all—poured in by way of response. The committee recommended and supervised grants, made by the Fund, to forty-eight of these institutions. Among the practices

Small rural schools can broaden their scope by the ingenious use of space and staff.



explored were large-group instruction, the regular use of TV, films, and tape, the wider use of graduate and undergraduate teaching assistants and part-time faculty members, curriculum reforms, and greater reliance on the student to assume responsibility for his education and to study independently.

In 1959, after studying detailed returns and evaluations of the various projects, the committee published the results in a summary report intended as a guide to other institutions.* Among its significant findings: many students can profit from increased independent study; the quality of the teacher has far more to do with what the student learns than does the size of the class; colleges can enrich their staffs by tapping their local communities for part-time teachers recruited from among educated housewives, retired professional people, industrial research personnel, and business leaders. The summary emphasized the need for further experimentation with a broader scope and for an open-minded attitude on the part of the faculty and administration. Traditional practices give ground slowly, and resistance to changes, especially those involving technological novelties, is great. A special evaluation committee criticized the design and limited scope of many of the experiments, but found the over-all program "one which has helped to achieve the Fund's central purpose, the advancement of education."

No words better sum up the philosophy and the hopes of the Fund's staff-utilization program than this comment by James E. Allen Jr., New York State Commissioner of Education, who wrote, in 1960:

> *Never before in history have our schools engaged in such widespread experimentation to meet the new educational requirements. Never before have so many hopeful new approaches developed in such a relatively short period. An intense self-examination is now under way on a national scale. In the process we are learning that many of the old ways of operating our schools are not necessarily the best ways.*

******Better Utilization of College Teaching Resources—a Summary Report.*** A report by the Committee on Utilization of College Teaching Resources. The Fund for the Advancement of Education, New York, May, 1959.**

Education for All

To further the ideal of equal opportunity for all to be educated to the limits of their abilities, these programs have sought to overcome the handicaps of geography, poverty, and race.

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Education for All

UNIVERSAL EDUCATION — or, more precisely, equality of educational opportunity — is a basic tenet of our democracy. The concept appears neither in the Constitution nor in its amendments, but it is implicit in the promises of America. The founding fathers, notably Thomas Jefferson, made clear their conviction that the new democracy could work only through an enlightened electorate. Today "universal education" does not mean eight, twelve, or sixteen years of schooling, and not an equal amount for everyone, but the chance for everyone to get the kind and amount of education, including college and graduate study, that his capacities warrant. This interpretation is of relatively recent date, having been formed by the realities of contemporary industrial society. The educational system has not yet developed all of the instruments for implementing it, and the consequent inequalities, highly visible to all, have become a limitation upon the health of our democracy and a persistent source of danger to our society.

The inequalities of education are rooted in major problems of economics, race relations, demography, and technology, which lie beyond the scope of educational policy. Increased educational opportunity was a logical concern for the Fund, but it was plain that a philanthropic foundation could not hope to have a large immediate impact on so complex a problem. Indeed, even if the Fund had poured all its resources into scholarships or aid for rural schools, it would have met only a fraction of the existing need. As in its other areas of interest, the Fund could, however, and did undertake pilot studies and demonstrations to point the way to large-scale solutions.

Despite existing controversy over the best means of reducing the inequalities in educational opportunities, there is little argument about the causes. These are as obvious as they are many. Millions of children fail to get proper schooling because they are Negroes, or members of other minority races; others because their families cannot afford to keep them in school or send them to college; others because they live in isolated areas, far from adequate schools; and still others for varied, and not easily catalogued, reasons. The Fund has supported many projects designed to probe one or another of these causes. More often than not–since educational inequalities are apt to have multiple causes – the Fund's projects have dealt with these causes in combination.

* * *

Some of the projects aimed at overcoming geographic handicaps have already been mentioned in the section dealing with the more efficient use of teaching staff and resources; these are the efforts to improve certain small rural schools in Colorado, upstate New York, Vermont, and Maine (see page 66). Besides these, the Fund has supported experiments designed to provide better teachers for such educationally depressed areas as the Virgin Islands and the Kentucky mountains, as well as pilot projects to improve teaching in Negro schools and colleges.

The Virgin Islands project was based on a 1953 proposal by Hampton Institute in Virginia, one of the country's outstanding training centers for Negro teachers. In partial amelioration of the inadequate opportunities for the Islands people to get teacher training, the five-year experiment included in-service training of teachers on the Islands and the preparation of new teachers at Hampton for Islands assignments. A somewhat similar program was carried out cooperatively by Harvard, Cornell, and Dillard

University in New Orleans to prepare superior Negro teachers for the New Orleans public schools.

The Kentucky mountains project centered in Berea College. Berea had already shown, on a small scale, that it could recruit able teachers for remote mountain areas. In 1953, Berea proposed to the Fund an extension of its scheme, and received a four-year grant. In cooperation with the Kentucky Department of Education and four county school superintendents, Berea selected as teaching fellows forty-eight recent college graduates (twenty-four in 1953 and as many more in 1954) who held state certificates as fully qualified teachers, and who agreed to stick it out in rural communities for a three-year period. In return, over and above normal salaries, the fellows received grants of $500 to $1,000 for summer travel and study after each school year of the program. During the school year they were guided by "helping teachers," and they visited Berea at intervals for workshops on rural education. The experiment worked out so well, and at such modest cost, that when Fund support ended, the counties took over some aspects of it themselves as a regular part of the school system. The Berea fellows improved the curriculums of the schools where they taught, brought new interests to their pupils, and helped enhance the quality of rural education throughout the state.

In addition, in 1957 the Fund agreed to support a three-year program at Berea in cooperation with the University of Kentucky to train rural supervisors, partly through supervised internships and partly through graduate work. As a result of this experiment the University of Kentucky has adopted a program providing field experience for supervisors, superintendents, and principals.

A special set of educational inequalities, quasi-geographical in nature, exists for Puerto Rican children in New York City schools. By 1953 the Board of Education already had about 30,000 non-English-speaking Puerto Rican children in the city school system, and a fair amount of experience in working with them. But in order to develop a city-wide program of increasing their educational opportunities, the board needed more money to develop the best methods and materials for teaching them English, and also to determine the best ways of helping them and their parents to become responsible members of the community.

The board approached the Fund with these objectives in mind, and received four years of financial support. The first two years were devoted to exploration and experiment, and the next two years to putting the most promising solutions into practice at different levels of the school system. Among the specific techniques that proved useful to the children were write-in pictures for learning English nouns, special set-aside periods of language instruction, the use of Spanish words and songs in class to make the children feel that they belonged, and so on; the full list would be long indeed. With the parents—whose absorption into local life would advance their children's opportunities—the efforts included interviews with Puerto Rican staff members, guidance in getting medical and other assistance, encouragement to participate in school programs, meetings, and entertainment, and a great deal more.

Today the results of the Puerto Rican study are being applied throughout New York City's school system. Special teachers, trained in the use of new materials and techniques, work in every school with a heavy Puerto Rican enrollment; they are assisted by native Puerto Rican teachers, who work directly with parents as well as students. Operating out of Board of Education headquarters, three experts coordinate activities in the high schools, in the junior highs, and in the elementary schools. Word of the promising new program has spread to other cities faced with similar problems: the board has made its materials available to Chicago and Miami, among other places.

Early in 1959 the Fund supported a project closely related in spirit to the Puerto Rican study, and directed toward the needs of pupils in the so-called "gray areas" of many large cities, lying between the commercial centers and the newer suburbs, and characterized by older dwellings, low income levels, shifting populations, and large influxes of rural and impoverished migrants. Obviously, children in these areas face multiple handicaps; as pupils they have high failure and dropout rates, poor attendance records, and low aspiration and achievement levels.

In 1956 the superintendents and representative board members of school systems in fourteen cities with populations of 600,000 or more, realizing that they had many problems in common, joined forces and formed the Great Cities School Improvement Program. Their aim was to seek solutions to major urban-school problems through cooperative research and experimentation, exchange, and intercity visits.

After recommending reforms in vocational education, they chose as their next task the identification and development of the talents of culturally handicapped children, and turned to the Fund for help. The Fund, having long been interested in this field, authorized $30,000; the planning accomplished with this modest grant resulted in a series of nine Ford Foundation grants in 1960.

* * *

The projects just discussed touched on the limitations placed on educational opportunity by poverty; primarily, however, their emphasis was on geographical and sometimes ethnic factors. In addition, the Fund has undertaken projects with a more direct approach to the economic handicaps to equality.

Scholarships are the traditional device to make college education possible for able students from low-income families, yet they are far from a simple or universally successful solution. As an early Fund staff memorandum observed: "The provision of [scholarship] aid is much more complicated than is often assumed, involving social attitudes of families, personal motivation, adequacy of secondary-school preparation, as well as economic difficulties."

The Fund has concentrated on developing new techniques of recruiting potential college students, thus acting as scout and agent for the Ford Foundation, which, early in the 1950's, contemplated a national scholarship program. These plans resulted in the National Merit Scholarship Corporation, established in 1955 with $20 million from the Foundation plus assistance from the Carnegie Corporation and from business and industrial concerns. To date the program has aided close to 4,000 students, and the total scholarship money available has grown considerably now that National Merit scholarships provide individual corporations with a sound method of making awards.

The Fund's first scholarship grant went to the University of New Mexico in 1952, for aid to needy students. This program was designed to explore new ways of finding promising college students; New Mexico, with its high proportion of Spanish Americans and Indians, offered a likely source of wasted talent. An explicit purpose of the grant was to discover what reasons besides financial need kept talented young people from going to college. Such factors as social and family tradition or attitude, and personal motivation, were to be given special attention. The university, working with all the high schools in the state, screened and located 193 students and awarded them scholarships during the four years of the experiment.

The results were enlightening, surprising, and somewhat dismaying, for they contradicted the frequent assumption that lack of money is all that keeps many able students out of college. Of the 193 students, eighty-three dropped out of college before graduation, although scholarships removed the problem of lack of money in all but a few cases. Appraising the experiment, the university observed: "Pending similar studies elsewhere, it is reasonable to conclude that a lack of orientation toward higher education, based on cultural factors, may be a greater barrier than financial need." The New Mexico project, incidentally, points up the difficulty of deciding whether to label an experiment a failure or a success. The immediate outcome of the project, in human terms, was disappointing —yet it did reveal the extent to which such intangibles as motivation and cultural background inhibit the pursuit of higher education.

From 1954 to 1956, the Fund took part in another scholarship project with happier results and a most encouraging future. This took the form of a small grant to the Boys' Club of New York, to help it carry out effectively the terms of a bequest that would mature in 1957. The club was to receive substantial funds for the purpose of educating exceptionally promising Boys' Club members—such boys "to be selected young by reason of their probable capacity for future development rather than by reason of their proficiency in book learning as shown by school examinations" and to be "placed in country boarding schools rather than in city schools." The pilot program established the necessary policies and procedures, and made it possible to put a well-planned scholarship program into operation when the bequest matured. Currently there are fifty-nine boys enrolled under this program in such preparatory schools and colleges as Andover, Exeter, Yale, Harvard, and Princeton. Ultimately, the Club expects to place 100 boys yearly, with the institutions helping to underwrite the costs. Almost without exception, the boys maintain commendable records, scholastic and otherwise, and the Boys' Club hopes that the impact of the program will raise the level of aspiration in the neighborhoods it serves.

Still another scholarship project had good immediate results, and contributed as well to new techniques of recruiting. This was the Southern Project of the National Scholarship Service and Fund for Negro Students —a systematic search for Negro talent, made with the help of community groups in the South. The project guided these recruits to admission in non-segregated colleges. About half of the students scored high enough in their aptitude tests to indicate probable success in college, and more than 90 per cent of those who completed their applications with the help of the NSSFNS were accepted by the colleges to which they had applied. A large proportion of those admitted to a college graduated, despite severe deficiencies in their backgrounds, and their success has helped to make colleges more receptive to other culturally handicapped students.

* * *

The NSSFNS project was related to a series of conferences with leading white and Negro educators in 1953. The educators thought that, with five important cases of racial segregation in the public schools pending before the Supreme Court, a dispassionate, scholarly study of the subject should be made. The Fund financed such a study under the direction of Harry S. Ashmore, executive editor of the *Arkansas Gazette,* who was given complete freedom in planning the research, choosing his staff, and writing the report. The research director was Philip G. Hammer, executive officer of the National Planning Association's Committee of the South, who worked with forty-five leading sociologists, lawyers, political scientists, economists, population analysts, and educators, mostly from southern universities, to produce the basic research. Over a period of several months, the researchers analyzed the legal and practical aspects of school segregation, the over-all economics and status of public education in the South, significant examples of school or college integration in the South and elsewhere, and other relevant matters.

For the Fund to sponsor research on such a scale was a departure from its established policy, but only through such sponsorship could a comprehensive study be put together quickly. The product, Mr. Ashmore's summary and interpretation of the research findings, was entitled *The Negro and the Schools,* and appeared on May 16, 1954. Its concluding words were prophetic:

> *In the long sweep of history the public school cases before the Supreme Court may be written down as the point at which the South cleared the last turning in the road to reunion—the point at which finally, and under protest, the region gave up its peculiar institutions and accepted the prevailing standards of the nation at large as the legal basis for its relationship with its minority race. This would not in itself bring about any great shift in Southern attitudes, nor even any far-reaching immediate changes in the pattern of bi-racial education. But it would redefine the goal the southern people, white and Negro, are committed to seek in the way of democracy.*

By coincidence, the Supreme Court decision unanimously outlawing segregation in the public schools was announced the very next day. *The Negro and the Schools,* published by the University of North Carolina Press, evoked an immediate and continuing favorable response from the press and other media, from educational and civic leaders, and from teachers and parents. Three reports that presented the major research findings in greater detail were published later.

In the aftermath of the Supreme Court decision the Fund sought more ways to help southern schools meet their complex problems. From a series of meetings with southern editors and educators grew the Southern Education Reporting Service, established in the fall of 1954 to provide accurate and objective information on developments in southern schools resulting from the Supreme Court decision. SERS, now assisted by the Ford Foundation, is administered by a board of southern editors and educators; its monthly *Southern School News* provides unbiased up-to-date information gathered by experienced southern reporters. As it was hoped, SERS has been useful in informing communities how other southern communities have fared. And to a degree exceeding all hopes, SERS has been widely accepted by the daily newspapers and the wire services as a major news source on over-all school desegregation. In addition, in 1957, SERS published a full-length account of desegregation history in the three years

following the Supreme Court decision, entitled *With All Deliberate Speed,* and in 1959 followed this with a comprehensive survey of southern education, called *Southern Schools: Progress and Problems.*

The Fund assisted several other publications that suggested ways to overcome the complex problems raised by the Supreme Court decision. These include reports from Baltimore and Louisville schools on their experiences, and a guidebook prepared by Phi Delta Kappa, called *Action Patterns in School Desegregation,* to help southern communities cope with their new problems.

Universal education and equality of educational opportunity did not become realities during the past decade. The groundwork for new advances now exists, however. The sharpened national anxiety about the manpower supply may at last improve the substandard schooling now provided for many Negroes, immigrants, slum children, and back-country children. If fear for survival accomplishes what the democratic ideal has not, the irony should neither surprise nor dismay Americans, with their long native tradition of pragmatism.

EDUCATION IN THE NEWS / 1950-1961

MAY	National Science Foundation is approved by Congress.
JUNE	Korean War begins.
	Elementary-school enrollments hit 22,200,000, after having remained at a fairly constant 20 million through the 1940's.
DECEMBER	Midcentury White House Conference on Children and Youth.

JANUARY	NEA's Educational Policies Commission recommends improved education of gifted children.
APRIL	Fund for the Advancement of Education established by Ford Foundation.
OCTOBER	Fund makes first grant for teacher training, to University of Arkansas and associated colleges.

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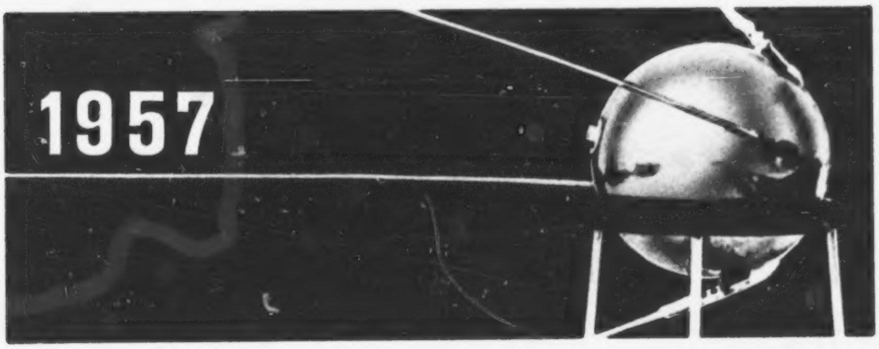
APRIL	Harvard's President James B. Conant attacks concept of private schools as "menace to our democratic unity."
JUNE	American Legion denounces NEA as force for "socialistic America."
	Fund makes first grant for teacher aides, to schools in Bay City, Michigan.
JULY	New G. I. Bill of Rights passes.
DECEMBER	U. S. Office of Education estimates that nation lacks 325,000 schoolrooms.

APRIL	New Department of Health, Education and Welfare is created, with Cabinet status for its head.
JUNE	Elementary-school enrollments up to nearly 25 million; thousands of Korean War veterans enroll in colleges.
JULY	Korean War ends.
SEPTEMBER	Council for Financial Aid to Education established.
	"Educational Wastelands" by Arthur E. Bestor is published.
	"Quackery in the Public Schools" by Albert Lynd is published.
	Fund makes first grant for teaching with television.

MARCH	Harvard announces it will accept exceptional high-school juniors as freshmen, exceptional high-school graduates as sophomores.
MAY 16	"The Negro and the Schools" by Harry S. Ashmore is published.
MAY 17	U.S. Supreme Court unanimously outlaws public-school segregation.
OCTOBER	"Diminished Mind" by Mortimer B. Smith is published.

MARCH	"Blackboard Jungle" is released to theatres.
	"Why Johnny Can't Read" by Rudolph Flesch is published.
MAY	U.S. Supreme Court unanimously makes local school authorities responsible for desegregating schools.
JULY	Progressive Education Association dissolves after thirty-five years.
SEPTEMBER	National Merit Scholarship Program is founded.
DECEMBER	Ford Foundation makes nationwide grant of $260 million to raise college faculty salaries.

APRIL	NEA survey shows that nearly 75 per cent of all male teachers take extra jobs.
AUGUST	National Science Foundation reports that the U.S.S.R. graduated twice as many scientists in 1955 as did the United States.
OCTOBER	Southern Education Reporting Service reports that integration has begun in less than one-fifth of southern school districts.



APRIL	Government launches nationwide campaign to discourage high school "dropouts."
AUGUST	"One-Fourth of a Nation" by Paul Woodring is published.
SEPTEMBER	Integration crisis begins in Little Rock, Arkansas. President Eisenhower sends in troops.
FALL	Fund sponsors the National Program in the Use of Television in the Public Schools, involving nearly 40,000 students in more than 200 schools.
OCTOBER	Sputnik I, first man-made satellite, is successfully launched by the U.S.S.R.
	U.S. Office of Education estimates total school and college enrollment at 43 million.

FEBRUARY	NEA, under Carnegie Corporation grant, holds national conference on gifted students.
	"Images of the Future" by J. Lloyd Trump is published.
MAY	Troops withdrawn from Little Rock; first "integrated" Negro gets high-school diploma.
JUNE	"Pursuit of Excellence" is published by Rockefeller Brothers Fund and makes sweeping recommendations for improving education.
AUGUST	Total school and college enrollment reaches 45 million.
	Congress passes National Defense Education Act.
OCTOBER	NEA publishes specific recommendations for early identification of "academically talented" pupils, and for stiffer school programs.
	NBC-TV introduces Fund-supported "Continental Classroom" with a course on atomic physics.

1959

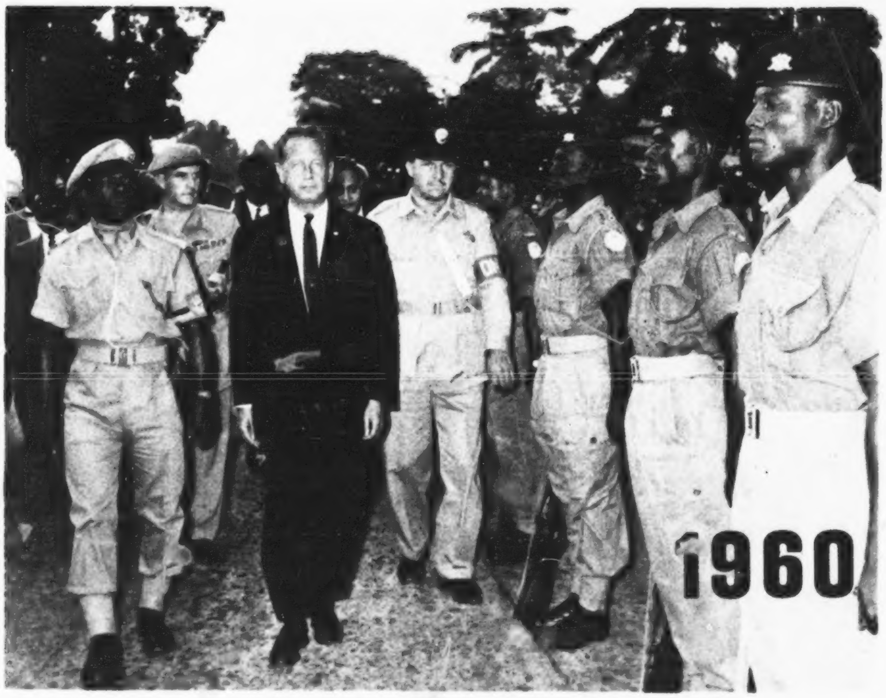
JANUARY "The American High School Today" by James B. Conant is published.

"Education and Freedom" by Admiral Hyman G. Rickover is published.

MAY President Eisenhower's Science Advisory Committee urges that U.S. double its annual investment of $18 billion for education.

"Memo to a College Trustee" by Beardsley Ruml and Donald H. Morrison is published.

SEPTEMBER Council for Financial Aid to Education reports that corporation gifts to higher education will hit $150 million in fiscal 1959-60.



1960

JANUARY	Committee for Economic Development recommends large-scale federal aid to education.
FEBRUARY	"New Directions to Quality Education" by J. Lloyd Trump is published.
MAY	American Institute of Biological Sciences undertakes broad reform of high-school biology courses.
JUNE	Encyclopaedia Britannica Films announces the production of inexpensive "teaching machines" to start in September, 1961.
SEPTEMBER	Ford Foundation makes unrestricted grants totaling $46 million to five large universities for pursuit of excellence.
	"The Child Buyer," a novel by John Hersey satirizing efforts to exploit the gifted child, is published.
FALL	Census reports show total school and college enrollment up more than 50 per cent since 1950.
OCTOBER	College Entrance Examination Board undertakes sweeping reform of high-school English instruction.
	"Recommendations for Education in the Junior High School Years" by James B. Conant is published.
	"Process of Education" by Jerome S. Bruner is published.

NOVEMBER	Mathematical Association of America announces broad program to reform mathematics teaching.
	President Eisenhower's Commission on National Goals recommends strengthening of education at every level.
DECEMBER	Total college enrollments reach 3,600,000, up more than 6 per cent over 1959.
	For the first time in the history of modern education, male teachers outnumber female teachers in public secondary schools.

1961

JANUARY	President-elect Kennedy's task force proposes $9-billion program to "lift schools to new level of excellence."
FEBRUARY	President Kennedy presents $5.6-billion plan for federal aid to education.
MARCH	Task force, appointed by American Economic Association, charts complete revision of high-school economics teaching.
APRIL	U.S.S.R. launches man into space, orbits him around earth, and brings him back safe.

Improved and Updated Courses

The gifted and the average student, and all of society, as this series of projects indicates, will benefit by radically overhauled courses, more flexible time schedules, and collaboration between the high schools and the colleges.

Improved and Updated Courses

Of the Fund's five major areas of interest, curriculum reform is probably the most difficult to accomplish. We are not a homogeneous nation with a well-defined set of cultural goals, but a diversity of peoples and cultures. Our very variety, which we have always cherished, keeps us from general agreement about what should be taught to our children. Many a curriculum has been achieved not through the rational consideration of the goals of education, but by compromise among several factions of the community; the result is not a school with the most beneficial curriculum but with a hodgepodge of curriculums. Complicating the situation further is the national desire to educate every American child. The curriculums of our schools have increasingly been designed for quantity output, to the serious neglect of quality. Only recently have world events reversed this trend and aroused interest in the reshaping of curriculums so as to emphasize quality.

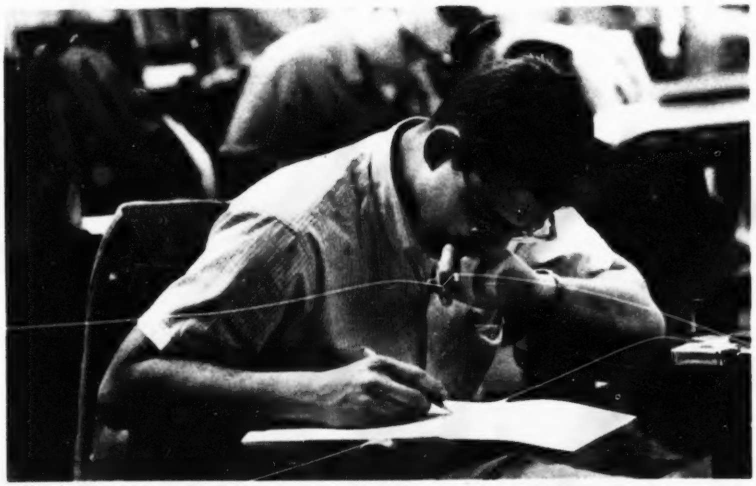
Much of the public debate for a decade or more about the need for improved curriculum content has been over the "progressive education" controversy. The advocates of improvement have often suggested a return to "solid subject matter" and "intellectual discipline" through a revival of the basic subjects taught in the late nineteenth century. The problem is not that simple; the accelerated growth of knowledge and the increasing complexity of society make it impractical simply to return to the old curriculums. The questions of what to teach and when and how to teach have to be reconsidered afresh in the light of the world we live in today—and the almost unforeseeable world our children will live in.

During its first five years the Fund did relatively little to support experiments specifically concerned with curriculum reforms, but many of the projects that this report has treated under other headings had much to do with overhauling curriculums. The new plans for training teachers, for instance, included the addition of liberal-arts courses and professional seminars; experiments in TV teaching often made possible the use of content not easily dealt with in the ordinary classroom; tapes have brought foreign-language instruction into small schools that could not have offered language courses otherwise; team teaching, involving a restudy of *who* is to teach *what*, has inevitably led to a reconsideration of just *what* it is that *who* is to teach.

The launching of the first Sputnik in 1957 galvanized the American public into calling for intensive re-evaluation of our school curriculums. Drastic changes were called for to update courses, particularly in mathematics and the sciences, to increase the supply of trained manpower, leadership, and creative scientific minds. Taking advantage of this readiness to accept new ideas, the Fund focused on projects designed to revise curriculums from the elementary-school level to the college level.

Educating the exceptional

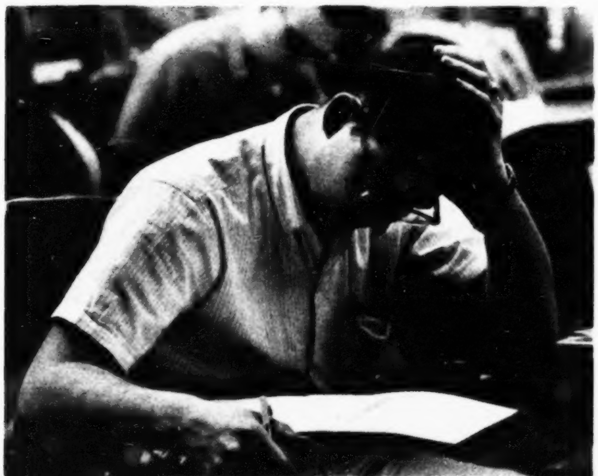
In the past our public-school system has been more successful in meeting the needs of the average, below-average, and handicapped children than those of the exceptionally capable students. It has been more or less as-



sumed that the gifted would make progress without special help, by virtue of their native endowments, and that there was something undemocratic about "rewarding" superiority with special attention. Since everyone was expected to proceed at uniform speed through twelve years of public school (a progression sometimes called "the academic lock step"), many superior students became bored and lazy, and failed to fulfill the promise of their first years. Many educators were aware of this tragic neglect of talent, but few, even when they were willing to risk public disapproval, were in charge of budgets large enough to set up special programs to counter this waste and to develop to the utmost our national resources of brain power.

When the Fund turned its attention to the improvement of curriculums, therefore, it first concerned itself with reforms that would benefit the gifted students by revising their schooling, enabling them to break out of rigid patterns of instruction and to proceed according to their individual capacities. Some of these programs have been pursued by colleges alone, others by colleges working with selected secondary schools, and still others by colleges working with entire school systems.

In the latter category belong the experiments conducted by the public-school system of Portland, Oregon, working in cooperation with nearby Reed College. School officials in Portland concentrated for several years on plans to identify and develop their gifted students. When they asked for aid to turn these plans into reality, the Fund made substantial grants for a five-year experiment, eventually extending into sixty-five elementary and eleven high schools. Students with either high intellectual capacity or unusual ability in the arts now get enriched courses, special classes, advanced work, and seminars. Teachers attend summer workshops to discuss and revise these special courses, and some receive in-service training.



Public schools in Hicksville, New York, have turned their attention to improving their students' competence in science and foreign languages. Capable youngsters may start French, Italian, Spanish, or German in the first grade and continue it through high school, thus attaining a high level of proficiency in a foreign tongue. In science, likewise, the especially able children start earlier than usual and are given instruction in various scientific disciplines, one at a time, rather than being given the easier but amorphous "general science" courses conventionally used in early grades. Results indicate that probably as many as one-fourth of all pupils, given this kind of program from the beginning, could complete high school one to two years sooner than they now do.

The school system of San Bernardino, California, has developed a special program to identify and encourage high-school students with special abilities. Rapid learners in English, the sciences, social studies, and foreign languages can attend special classes. As in Portland, there are also special classes for students with particular talent in music, drawing, and other arts – areas frequently ignored in the accelerated learning programs.

The schools of San Angelo, Texas, have what is called a "three rail" curriculum from the first grade all the way through the twelfth grade. Each pupil is placed, according to ability, into a slow, average, or fast group, with freedom to move from one to another when and if indicated. The underlying problem in any such attempt at grouping is the presently imperfect means of evaluating the students, since innate abilities, acquired knowledge and skills, and emotional factors are all mingled and difficult to separate. Evaluation methods are therefore receiving particular study in this project.

The Board of Cooperative Educational Services in Oneida County, New York, carried on an interesting and unusual project for above-average students with such good results that at the conclusion of Fund support the New York State Department of Education continued it. The program offers, during the summer, advanced work in various subjects, including music, art, science, electronics, mathematics, English, French, and Russian. Attendance is voluntary and no credit is given, the only reward being intellectual experiences not available in the school year.

All told, projects designed for gifted students have had such uniformly gratifying results as to make it clear that Americans have been underestimating the capacities of their children. Most exciting is the repeated observation that wherever special programs have been instituted, achievement levels have risen throughout the entire school.*

Bridging the gap between school and college

A student in the American educational system usually gets the real foundation of his liberal education in his last two years of high school and first two of college. Prior to the eleventh grade he is largely occupied with acquiring the minimum essential tools, skills, and information necessary to function in society, and after his second year in college he is increasingly required to major in one field. But from the eleventh through the fourteenth year, his horizons are wide and exhilarating, for during this time he is encouraged to consider new and complex ideas and concepts. These are the years in which, if ever, he will acquire a taste — hopefully, a lifelong appetite — for broad liberal learning.

This important period, however, is ordinarily divided into two parts consisting of two years each: the first half governed by the high-school curriculum, and the second by a college curriculum that too often takes little account of the student's previous education. This break in the continuity of the learning process can harm the student in one of two ways: in some circumstances he finds himself deficient in the background that a particular college requires for its freshman courses, and lags behind in the class until he makes up what he lacks; if, on the other hand, he has graduated from a high school that allowed him to advance rapidly, he may find himself repeating in college much of the work he has already covered. In the early 1950s another factor that added to this maladjustment was the draft, which took many students away from college before they had finished the first two years; students so interrupted sometimes did not return to college.

The Fund quite early decided to work for a closer integration of high-school and college curriculums in order to provide students with

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*The Fund-supported programs for the gifted are described in greater detail in *Encouraging the Excellent*, an extended report published by the Fund in 1960 and written by Elizabeth Paschal, a staff member.

continuity in their studies. Such a knitting together of school and college would, moreover, create conditions under which the ablest students could go ahead at a faster pace. In 1951 the Fund made grants to a program known as Early Admission to College. Twelve colleges agreed to admit, as regular freshmen, outstanding high-school students under the age of seventeen who had finished their sophomore or junior years but had not completed work for their diplomas. Over a four-year period, 1,350 such students received scholarships to the cooperating colleges. Academically, they held their own; socially, they adjusted well on the whole; and intellectually, they seemed to enjoy the challenge and the opportunity.*

Another, and complementary, experiment was the Admission with Advanced Standing, or Advanced Placement program. Twelve colleges and twelve high schools collaborated in the design of this project, the colleges agreeing to give advanced standing to unusually capable students who had taken special college-level courses in high school, and who had satisfactorily passed examinations devised by the College Entrance Examination Board.

In effect, Early Admission to College is a way in which weaker high schools can help their most capable students avoid the doldrums of being tied to slower classmates; Advanced Placement, in contrast, is useful to high schools that have the facilities and the faculty to offer the advanced courses. Both programs have continued and grown after Fund support ended. All twelve colleges in the Early Admission program continue to accept such enrollments (though most no longer reserve scholarships exclusively for this purpose); elsewhere the practice has become a small, but accepted, part of the policies of many colleges, and it is estimated that thirty-five institutions now accept students without high-school diplomas. The Advanced Placement program has shown much greater growth: since 1955, when the College Entrance Examination Board took over administration of the program, it has expanded eightfold. Examinations for Advanced Placement were taken by 10,331 students in 1960. And 567 colleges now accept students on this basis; most of them are in the East, but Advanced Placement programs are beginning to spread to other

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*For more details, see *They Went to College Early.* A report on the Early Admission to College Program. The Fund for the Advancement of Education, New York, 1957.

parts of the country. To help that diffusion, the Fund has recently supported cooperative Advanced Placement projects of school and college groups in Ohio, Oregon, and in the Pittsburgh area.

As was true of the special programs for gifted pupils, courses leading to Advanced Placement have proved to be an unexpected stimulus to the student body. Most high schools find that these courses exert a subtle beneficial effect throughout their curriculums. The Westminster Schools, in Atlanta, Georgia, a group of independent elementary and secondary schools, noticed, for instance, that shortly after they began to provide college-level work for the junior and senior classes, the faculty found it necessary to extend grouping by ability to the grades immediately below, in order to prepare students for the advanced courses. The process has continued, and now extends down through all of the grades.

Bringing course content up-to-date

After 1957, public criticism of high-school curriculums grew vehement, particularly over the present and the future of American science. In view of the accomplishments of other countries (especially, of course, the U.S.S.R.) it became obvious that the content of the science courses was thin and out-of-date.

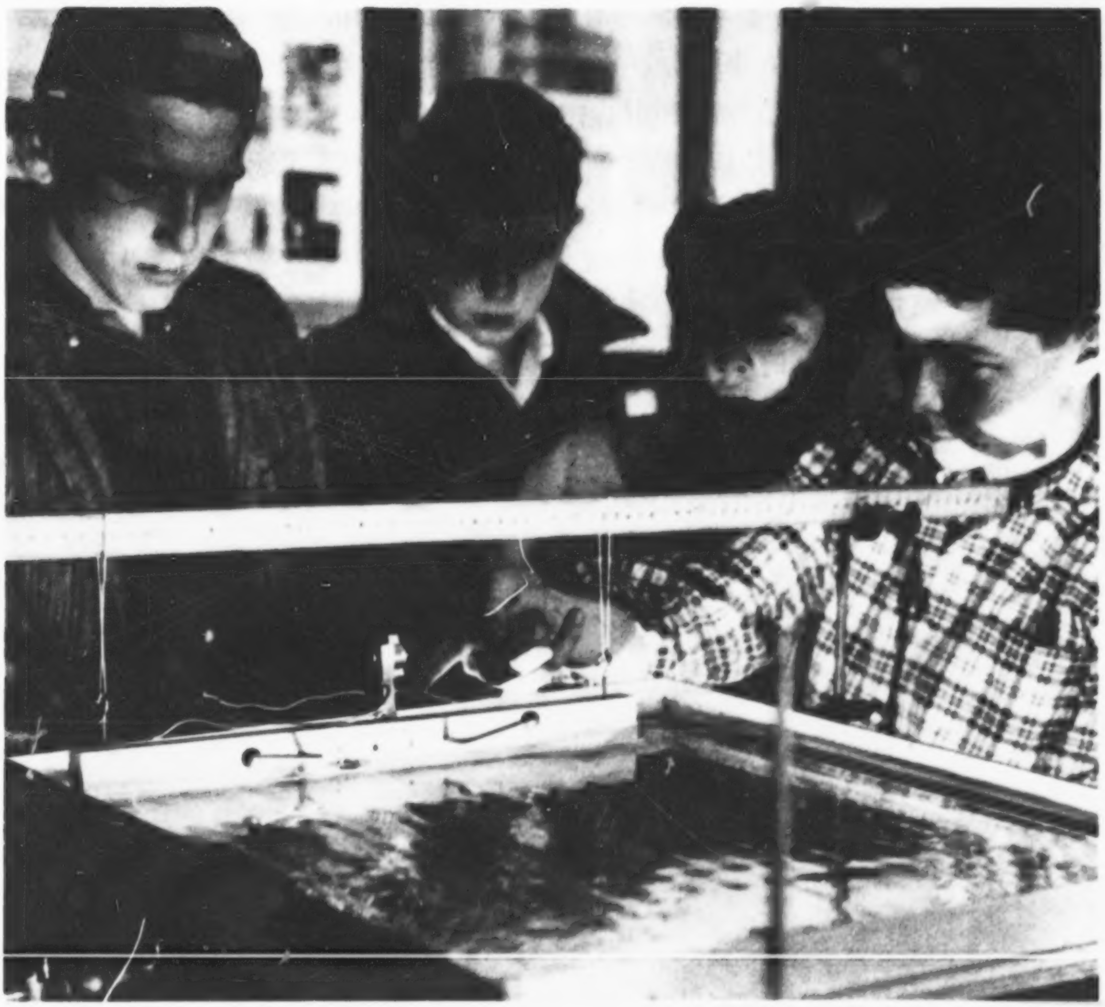
The Fund decided to support the preparation of new courses in physics, chemistry, and biology by outstanding scholars and high-school teachers. By means of films, which now had proved commercially feasible, and other technological innovations, these improved courses were made available to a large number of high-school teachers and their students. The television program, *Continental Classroom,* is probably the best known and most dramatic example of the outcome (see page 60).

The extraordinary advances in curriculum reform in the last few years, primarily in the sciences and mathematics, have been due to the unprecedented attention that leading scientists and university scholars have given to the public schools. There has been, to date, no comparable effort in the social sciences and the humanities – possibly because it is harder in these areas to agree on what needs to be done. Yet since many of the nation's and the world's most pressing problems are economic, psychological, or social in nature, it is imperative that curriculums in these fields also be reviewed and updated. Most high-school courses in "social studies," for instance, are as inadequate as were the physics courses, and are based on outmoded concepts dating from the infancy of the social sciences.

One Fund effort to remedy this is a project being carried on by the Eagleton Foundation at Rutgers University, which is preparing a new course to replace the usual "Problems of American Democracy" offered to seniors in most high schools. A pilot unit of this course, consisting of lectures and documentary films, is undergoing trial at several schools.

A broad curriculum revision to develop potential college students is being made by the public schools of Portland, Oregon, in collaboration with nine Oregon colleges and universities. Fifty college teachers first made a careful study of the existing high-school courses and recommended a series of changes. Seven courses are now being revised so that they will present subject matter most likely to stimulate intellectual inquiry, maintain continuity through the high-school years, and give the student greater responsibility for his own progress.

To carry out the plan and to introduce these changes into all



twelve high schools in Portland will probably require another two years; Fund grants for this project have accordingly been extended through 1963. Once completed, the revisions should serve as a model of significantly raised standards for other school systems, and should stimulate the colleges involved to improve their freshman and sophomore curriculums for students who have taken the new high-school courses.

Establishing experimental colleges

Like the high schools, colleges recently became aware that their courses needed review and revision. The nation urgently required an increased and improved output of scientists, yet it was imperative to keep the study of humanities from being overcome by an emphasis on scientific training. And while more people with intensive training were needed in many new fields, colleges had to strengthen and safeguard liberal education against the inroads of increasing specialization. Imaginative experiments in curriculum changes were needed at once. But where should they be made, and by whom? For twenty-five or thirty years, a few dedicated experimental colleges had generated new ideas and methods for undergraduate education. But with the huge influx of students, faculties became too busy meeting everyday demands to give much time to imaginative planning; college administration grew so complex that it became difficult to get unanimous acceptance of a new plan for thorough trial. The academic world was losing a vital stimulus.

The Fund, in consultation with faculty members and administrators who were concerned about the diminishing educational experiments, made a number of study grants to allow selected faculty members time to consider the problem and to attend conferences at which ideas were exchanged and discussed. Out of a welter of ideas, two emerged as deserving of subsidized experimentation: *1)* the sponsorship of new private colleges by existing institutions, whose faculties would develop original educational plans, and who could then be assigned to the new colleges to put them into effect, and *2)* the establishment of distinctly experimental units within existing institutions.

In pursuit of the first idea, the Fund in 1958 supported a study undertaken by four Massachusetts institutions--Amherst, Mount Holyoke, Smith, and the University of Massachusetts–which resulted in a blueprint for a "satellite" institution tentatively called New College. Drawing upon the resources of the four parent institutions for staff and space, it would use improved techniques and tools and offer an entirely new curriculum. It would serve the parent institutions as a demonstration center where new ideas could be tested and where experienced teachers, interested in novel and daring methods of instruction, could try them out. New College would embody marked economies in staff and other resources, primarily because of a high student-faculty ratio (twenty to one), made possible by the flexible use of quite large lecture groups and small seminar groups, and by the cooperative sharing of the library and scientific equipment. Administrative changes in three of these four colleges, however, have temporarily delayed completion of the program.

In pursuit of the second idea, the Fund supported experiments at Austin College in Sherman, Texas; Hofstra College in Hempstead, New York; Wayne State University in Detroit; and Harvey Mudd College in Claremont, California. While they all share an emphasis on the use of large-group instruction, the adoption of new teaching tools, the avoidance of redundant and overlapping courses, and the increased reliance on the student's capacity to work on his own, they have employed different vehicles for introducing these features.

Wayne and Hofstra have each opened new institutions within their existing structures. In the fall of 1959, Wayne enrolled 314 freshmen in a new liberal-arts division, called Monteith College. All students are required to take four semesters of natural science (emphasizing the philosophical and historical aspects), three of social science, and three in the humanities (engineering students are not obliged to take the natural-science courses). These specific requirements are made to ensure the student's getting a firm grounding throughout the spectrum of knowledge. Hofstra's new unit is somewhat similar to Monteith in that it requires a basic course in science, social science, and the humanities. A novel feature is the use of discussion groups after morning lectures; the discussions are led mainly by students, with the faculty lecturer moving from one group to another. The program operates on a four-day week, allowing students–many of whom have part-time jobs–long weekends for outside work.

Austin College has not set up a separate unit, but instead is trying out a special two-year sequence of planned courses in the humanities and the natural sciences called Basic Integrated Studies. The various subjects are built around the unifying theme of history, and at any given point several subjects are taught in relation to the same historical era. After this two-year program, students concentrate on their major fields, with much latitude for independent study.

Harvey Mudd College was still in a formative stage when the Fund was making grants in this area (it admitted its first students in 1957 and received a grant from the Fund the next year); it therefore had considerable freedom in setting up its curriculum. Its experimental program involves a combination of science and engineering, with the important proviso that the student devote a third of his time to the humanities and social sciences.

Experiments in curriculum reform, although beginning later and on a smaller scale than the Fund's other programs, have had a high degree of success. Further efforts along these lines are likely to engage the Fund in the future.

Modern Business Methods

The academic world has ignored the modernization of business methods and financing, but several studies show how newer methods can raise both the quantity and quality of education.

Modern Business Methods

In the postwar era many colleges and universities have been the major source of original research and development for the armed services, the Atomic Energy Commission, commerce, industry, medicine, and agriculture. Ironically, little or none of this creativity has been directed toward the improvement of the colleges' own administrative efficiency and financial operations. Probably owing to academic traditions, there has been deeprooted reluctance to borrow modern administrative and technological developments from the business world and to apply them to the business aspects of education. Academic administrative methods were about the same in 1950 as they had been in 1920, remaining innocent of modern personnel management, budgeting, automated accounting, and so on.

To improve this situation the Fund has supported some imaginative attacks on the management and financing problems of colleges and universities. Each has been small, but the results have been widely disseminated, achieving considerable influence. Among the projects were *1)* surveys to bring about specific improvements in college and university managements, *2)* studies to document the need for raising faculty salaries, *3)* the creation of a means for promoting greater private financing of higher education, and *4)* the establishment of norms for cost comparisons among institutions of various sizes.

Management surveys

Between 1952 and 1954 the Fund allocated nearly $1 million, on a matching-dollar basis, to support management surveys in forty-five private colleges and universities, land-grant colleges and other state institutions for higher education. The subjects covered in the surveys ranged from the utilization of people, money, and plant to budgetary and accounting procedures. Some were made by well-known management consultants, others by the institutions themselves. The surveys succeeded in almost all cases in showing where and how certain changes, if made, would result in more efficient and more economical management.

In some instances the results were spectacular. One small liberal-arts college, after revising its methods of scheduling staff activities, its use of physical facilities, and its allocation of nonstaff activities, found that it could accommodate a considerably larger number of students than had previously seemed possible. One university with branches in different parts of the state worked out detailed descriptions of the specific responsibilities of all its major officials for the first time, thereby strengthening the delegation of authority and improving over-all coordination. Another university, with an antiquated organizational structure that had grown up by planless accretion rather than design, discovered it was seriously overspending its available income for maintenance operations. More efficient scheduling, tighter budgeting, and other reorganizations led to a major paring of $1 million a year in maintenance disbursements. In general, the savings were such that the surveys paid for themselves within a year after completion.

Teacher-salary studies

Teaching Salaries Then and Now, a report prepared by two economists, Sidney G. Tickton and the late Beardsley Ruml, was published by the Fund in 1955. It compared changes in wages in the teaching profession to those of other occupations over a fifty-year period, and exposed the economic downgrading to which teachers have been subjected. Although their salaries have risen over the five decades, their net increase in real purchasing power has been strikingly smaller than that of industrial workers. Between 1904 and 1953, for instance, teachers in big-city elementary schools made a net purchasing-power gain of 40 per cent, and those in big-city high schools a net loss of 1 per cent (teachers in small-city schools did somewhat better). Professors lost 2 per cent of their purchasing power, and principals of big-city high schools lost 30 per cent. Meanwhile telephone operators had gained 111 per cent, auto workers 140 per cent, and coal miners 163 per cent. These statistics show to what degree the economic position of the teacher, in relation to the people in the community about him, had declined. Simply trying to raise enough extra money to make up the difference would not work, the report warned; to counter the trend would require "increased efficiency, new ideas of teaching methods, drastic reorganization of curriculum, and a belief in education as a value for its own sake."

Educators and administrators alike acclaimed the study for its factual analysis and its concrete information. The first edition of 125,000 copies was quickly exhausted, and a second, and updated, edition was published in December, 1960.* Mr. Tickton, the author, reported that by the end of 1959, although university professors were still paid less on the average than locomotive engineers, salaries of top-level educators were beginning to run higher. A few university presidents, school superintendents, and full professors now receive salaries in the $25,000 to $50,000 range, but they are still rare exceptions. Many elementary-school teachers, despite having invested four years in professional training, are paid the same salary as a skilled office worker with a high-school diploma and a few years of on-the-job training. It is little wonder that the serious shortage of well-qualified teachers persists. What to do about inadequate salaries continues to plague school boards, teacher associations, administrators, and legislators. The obvious answer of tax increases is, in many cases, no answer at all since rates already are so high that taxpayer resistance has become a severe obstacle.

In 1959 the Fund had requested Beardsley Ruml to make a study

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*Tickton, Sidney G., *Teaching Salaries Then and Now: A Second Look*. The Fund for the Advancement of Education, New York, 1960.

of the utilization of resources by liberal-arts colleges as seen by the professional economist. The report on this study, written by Mr. Ruml and Donald H. Morrison, was published by McGraw-Hill in 1959 under the title, *Memo to a College Trustee.* In it Mr. Ruml stated his conclusion that the quality of education could be improved and *faculty salaries nearly doubled.* Mr. Ruml proposed to increase educational productivity by far-reaching revisions in organization, such as altering the student-faculty ratio from the usual ten to one to twenty to one; reorganizing the size of classes to permit large-audience lectures; and streamlining the curriculum so as to cut down the number of specialized courses now listed in catalogues. He felt that students' classroom schedules should be cut to give them time for more independent work, and that faculty teaching loads should be reduced to give teachers time for research and study. Above all, college trustees should be better informed and keep in touch with policies affecting the curriculum and teaching methods; they should concern themselves with balance sheets and budgets, bringing to these matters valuable contributions from their own practical business experiences.

The report quickly aroused interest, discussion, and hostility. Many educators disagreed emphatically with the proposals, especially those concerning the closer connection between trustees and educational policies. Nevertheless, the controversy produced some salutary results. The book caused many college and university administrators to examine their own institutions in the light of Mr. Ruml's challenging ideas. Some institutions, notably Wabash, Kalamazoo, Peabody, and Vassar, adopted a number of his proposals; others, such as the University of Pittsburgh, undertook searching reviews of their catalogue offerings, their course content, and the efficiency of their teaching arrangements. The Fund has appropriated $100,000 to help colleges set up similar studies of their calendars, class schedules, financial operations, and course offerings that may lead to imaginative reforms like those suggested by Mr. Ruml.

The Council for Financial Aid to Education

During the past decade, corporations have become a significant source of financial aid to higher education. Important leadership in this corporate philanthropy has been provided by the Council for Financial Aid to

Education, established in 1954 jointly by the Fund, the Carnegie Corporation, and the Sloan and Rockefeller foundations. The council has been directed by distinguished businessmen and by educators with experience in collegiate financial problems.

The council functions as an intermediary between the business and academic worlds. It advises educational institutions how to make their needs known to business, and assists business managements in formulating satisfactory programs of support to education. In so doing, the council has also helped business to expand its contributions to education. The council's advisory and research activities have been at least partly responsible for the rise in the share that education receives out of the total of corporate giving – a slice that has grown from 17 per cent in 1950 to nearly 30 per cent in 1960.

Cost studies

One barrier to competent financial management in colleges has been the lack of any uniform accounting practice. The Sixty College Study was initiated to publish for the benefit of college administrators the norms or ranges for certain common expenditures. Income and expense data for the year 1953-54 were gathered from sixty privately supported liberal-arts colleges, differing greatly in location, type, and size.

The published results* have proved useful in helping liberal-arts colleges evaluate their own practices, but since the figures were derived from a single year they could serve only as a temporary guide for long-term planning. To obtain an indication of the trend of costs by comparing a second set of data with the first, the Fund four years later granted money for a resurvey.† The new figures covered the 1957-58 academic year, and revealed among other things that while total educational and general expenses of the participating colleges had gone up nearly 40 per cent in four years, some items, such as general administration, instruction, and student services, had not varied more than 1 per cent in their relation to the total.

***A Study of Income and Expenditures in Sixty Colleges—Year 1953-1954*. National Federation of College and University Business Officers Associations, New York, 1955.

†*A Second Look at the Sixty College Study, 1957-1958*. National Federation of College and University Business Officers Associations, New York, 1960.

The California and Western Conference Cost and Statistical Study surveyed and analyzed the costs of higher education in a group of ten colleges and universities, some publicly, some privately supported. The study collected comparable cost data on expenditures for instruction, general administration, and plant facilities, thus providing those institutions with a common fiscal basis on which to compare their operations. It also enabled the schools to make internal comparisons, studying the different costs of instruction within their own institutions–sometimes a more useful undertaking than a comparison with another school. One interesting finding was that high salaries are not necessarily associated with high cost per student. The authors of the study concluded that under traditional methods of operating no dramatic reduction in costs could be expected; such reductions could be made only if administrators were willing to try innovations such as adaptable class size, teaching aids in quantity, self testing, etc.

In summary, there are many people who believe that the financial plight of the colleges cannot be solved simply by trying to raise more and more money, which sooner or later would become intolerably burdensome. Reorganization of curriculum, improved teaching methods, better utilization of teachers, and more efficient school management, based on a clearer understanding of the purpose of education in a dynamic society, are the necessary steps toward a solution of the financial and other difficulties of the schools.

SCHOOL BUS

The Next Decade

THE PAST DECADE *has been deeply concerned with a series of critical problems in education. All of them pertain to the central issue of how schools and colleges can maintain or improve quality in the face of exploding student enrollments. Some notable gains have been made, but as we enter the Sixties, a number of urgent questions remain unanswered.*

Can the function of the schools be clarified? Only to the extent that we are clear about the goals of education can we devise satisfying school and college programs. And it is plain that we can determine educational goals only after we have answered the larger question of what it is that we as a nation value most and wish above all else to accomplish in the years ahead.

Can the curriculum be designed anew to reflect all we know and still have to find out about the learning process? Schools and colleges must provide common learning that is broad and rigorous and at the same time they must meet the specialized demands of a complex society.

Will the teacher shortage be solved? Will we have to depend on traditional approaches or will we find new and better ways of utilizing teaching talent? Can we raise the status and economic level of the teaching profession and thereby attract a larger number of able people?

Will it be possible to develop schools that challenge and capture the interests of youth in the depressed neighborhoods of large cities?

Can we work out a better basis of financial support for our schools so that children in Mississippi will have the same educational opportunities as children in New York or California?

Building on the experience gained in the Fifties, will we find ways to bring all sound new ideas and techniques together to achieve not just a patchwork of improvement, but a coherent design of advancement? Such a unified effort would include curriculum reform, expansion of the team-teaching concept, provision for flexibility of student grouping as well as of time schedules, and the imaginative use of modern means of communication in the classroom; it would mean a more and more effective partnership between school systems and institutions of higher learning in the training of teachers and in educational research and development.

And above all else, can we improve our educational programs to make the most of human talent? In the pursuit of excellence we cannot afford to sacrifice the variety our educational establishment must maintain if it is to provide equality of opportunity to all.

New ideas and experiments will be needed in the decade ahead. For education is a creative process in which "principles that have served their day expire and new principles are born."

The Fund for the Advancement of Education is proud to continue to play its part in meeting one of the most serious challenges that face our nation in this revolutionary age.

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